



February 2, 2004

Mr. Steve Trent Fluor Hanford Inc. 825 Jadwin Avenue Richland, WA 99352

Reference:

P.O. #630

Eberline Services R3-12-194-7677, SDG(H2479

Dear Mr. Trent:

Enclosed is the data report for seven soil samples designated under SAF No. F03-025 received at Eberline Services on December 31, 2003. The samples were analyzed according to the accompanying chain-of-custody documents.

Please call if you have any questions concerning this report.

Sincerely,

Melissa C. Mannion

Senior Program Manager

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MCM/

Enclosure: Data Package

EDMC



Page 1 of 2

1.0 GENERAL

Fluor Hanford Inc. (FH) Sample Delivery Group H2479 was composed of seven soil samples designated under SAF No. F03-025 with a Project Designation of: 200-LW-1/LW-2 Characterization – Soil.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist.

2.0 ANALYSIS NOTES

2.1 Tritium Analyses

The matrix spike recovery was 669%. The activity from sample B17RV3 (7,185 pCi/aliquot) swamped the spike activity (1,133 pCi/aliquot). No other problems were encountered during the course of the analyses.

2.2 Carbon-14 Analyses

No problems were encountered during the course of the analyses.

2.3 Nickel-63 Analyses

No problems were encountered during the course of the analyses.

2.4 Total Strontium Analyses

No problems were encountered during the course of the analyses.

2.4 Technetium-99 Analyses

Due to a failed LCS (353%) the samples were reanalyzed for Tc-99. The results from the reanalysis are reported herein. No problems were encountered during the course of the reanalyses.

2.5 Isotopic Thorium Analyses

No problems were encountered during the course of the analyses.

2.6 Gamma Spectroscopy Analyses

No problems were encountered during the course of the analyses.

Case Narrative

Page 2 of 2

Case Narrative Certification Statement

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

Mulissa C. Mannion

Senior Program Manager

Date

SDG <u>7677</u> Contact <u>Melissa C. Mannion</u> Client Hanford
Contract No. 630
Case no SDG H2479

SUMMARY DATA SECTION

TABLE OF	сo	N T	E N	T S	
About this section	•	•		•	1
Sample Summaries	•	•	•		3
Prep Batch Summary	•	•	•	•	5
Work Summary	•	•.	. •		6
Method Blanks	•	•	•	•	9 4 1
Lab Control Samples	•		•	•	1.1
Duplicates	. •	•.		•	13
Data Sheets	•	•	•	• .	15
Method Summaries		• .	•	•	22
Report Guides			•	•	36
End of Section	•	•	•	•	50

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Reviewed by

Lab id	EBRLNE
Protocol	<u> Hanford</u>
Version	<u>Ver 1.0</u>
Form	DVD-TOC
Version	3.06
Report date	02/02/04

SAMPLE DELIVERY GROUP H2479

SDG 7677
Contact Melissa C. Mannion

REPORT GUIDE

Client	Hanford
Contract	No. 630
Case no	SDG_H2479

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

REPORT GUIDES

Page 1

SUMMARY DATA SECTION

Page 1

SAMPLE DELIVERY GROUP H2479

SDG 7677
Contact Melissa C. Mannion

GUIDE, cont.

Client	Hanford
Contract	No. 630
Case no	SDG H2479

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

REPORT GUIDES
Page 2
SUMMARY DATA SECTION
Page 2

SAMPLE DELIVERY GROUP H2479

SDG 7677 Contact Melissa C. Mannion

LAB SAMPLE SUMMARY

Client <u>Hanford</u> Contract No. 630 Case no SDG H2479

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R312194-01	B17RV3	216-B-58 #2 (35-37.5 FT)	SOLID	F03-025	F03-025-045	12/18/03 07:15
R312194-02	B17RX0	216-B-58 #2 (12.4-12 FT)	SOLID	F03-025	F03-025-010	12/17/03 09:00
R312194-03	B17RX4	216-B-58 #2 (17.5-20 FT)	SOLID	F03-025	F03-025-011	12/17/03 10:25
R312194-04	B17RY1	216-B-58 #2 (27.5-30 FT)	SOLID	F03-025	F03-025-014	12/17/03 14:00
R312194-05	B17RY8	216-B-58 #2 (22.5-25 FT)	SOLID	F03-025	F03-025-013	12/17/03 13:30
R312194-06	B17T00	216-B-58 #2 (52.5-55 FT)	SOLID	F03-025	F03-025-046	12/18/03 09:45
R312194-07	B17T03	216-B-58 #2 (97.5-100FT)	SOLID	F03-025	F03-025-047	12/22/03 10:05
R312194-08	Lab Control Sample	•	SOLID	F03-025		
R312194-09	Method Blank		SOLID	F03-025	1 .	
R312194-10 1	Duplicate (R312194-01)	216-B-58 #2 (35-37.5 FT)	SOLID	F03-025		12/18/03 07:15
R312194-12	Lab Control Sample		SOLID	F03-025	<u>:</u>	
R312194-13	Method Blank	4	SOLID	F03-025	: •	
R312194-14	Duplicate (R312194-01)	216-B-58 #2 (35-37.5 FT)	SOLID	F03-025		12/18/03 07:15

LAB SUMMARY Page 1 SUMMARY DATA SECTION Page 3

SDG 7677 Contact Melissa C. Mannion

QC SUMMARY

Client <u>Hanford</u>
Contract No. 630
Case no <u>SDG H2479</u>

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT			SINCE	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7677	F03-025-010	B17RX0	SOLID	87.0	282.6 g	12/3	/03	14	R312194-02	7677-002
	F03-025-011	B17RX4	SOLID	96.6	315.1 g	12/3	/03	14	R312194-03	7677-003
	F03-025-013	B17RY8	SOL ID	95.5	324.4 g	12/3	/03	14	R312194-05	7677-005
	F03-025-014	B17RY1	SOLID	92.0	313.4 g	12/3	1/03	14	R312194-04	7677-004
	F03-025-045	B17RV3	SOLID	93.1	307.2 g	12/3	1/03	13	R312194-01	7 677-001
	F03-025-046	в17т00	SOLID	95.3	335.7 g	12/3	/03	13	R312194-06	7677-006
	F03-025-047	в17т03	SOLID	97.2	330.9 g	12/3	/03	9	R312194-07	7677-007
	· <u> </u>	Method Blank Method Blank	SOLID SOLID		,				R312194-09 R312194-13	7677-009 7677-013
		Lab Control Sample Lab Control Sample Duplicate (R312194-01)	SOLID SOLID	93.1	307-2 g	12/3	1/03	13	R312194-08 R312194-12 R312194-10	7677-008 7677-012 7677-010
	•	Duplicate (R312194-01)	SOLID	93.1	307.2 g	12/3	1/03	13	R312194-14	7677-014

QC SUMMARY
Page 1
SUMMARY DATA SECTION
Page 4

SAMPLE DELIVERY GROUP H2479

SDG	7677	
Contact	<u>Melissa C.</u>	Mannion

PREP BATCH SUMMARY

Client	Hanford
Contract	
Case no	SDG_H2479

			PREPARATION ERROR									
TEST	MATRIX	METHOD	ВАТСН	2σ %	CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	FIERS
Alpha	Spectros	сору				_			:			
TH	SOLID	Thorium, Isotopic in Soil	7084-024	5.0	7 -		,	1	. 1	1/1		
Beta	Counting						-					
SR	SOLID	Total Strontium in Soil	7084-024	10.0	7			1	1	1/1	·	<u> </u>
TC	SOLID	Technetium 99 in Soil	7084-024	10.0	7			1	1	1/1		
Gamma	Spectros	сору										
GAM	SOLID	Gamma Scan	7084-024	15.0	7			1	1	1/1		
Liqui	d Scintil	lation Counting										
C	SOLID	Carbon 14 in Soil	7084-024	10.0	7			1	1	1/1		
Н	SOLID	Tritium in Soil	7084-024	10.0	7			1	1	1/1		
NI_L	SCLID	Nickel 63 in Soil	7084-024	10.0	7			1	1	1/1		
												

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.

Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

PREP BATCH SUMMARY
Page 1
SUMMARY DATA SECTION
Page 5

Lab id <u>EBRLNE</u> Protocol <u>Hanford</u>

Version <u>Ver 1.0</u> Form <u>DVD-PBS</u>

Version <u>3.06</u> Report date <u>02/02/04</u>

SDG 7677
Contact Melissa C. Mannion

LAB WORK SUMMARY

Client <u>Hanford</u>
Contract <u>No. 630</u>
Case no <u>SDG H2479</u>

LAB SAMPLE	CLIENT SAMPLE ID		•	OUE				
RECEIVED	LOCATION MATRIX CUSTODY SAF No	PLANCHET	TEST	SUF- FIX	ANALYZED	REVIEWED	вү	METHOD
312194-01	817RV3	7677-001	С		01/12/04	01/22/04	MWT	Carbon 14 in Soil
12/18/03	216-B-58 #2 (35-37.5 FT) SOLID	7677-001	GAM		01/16/04	01/22/04	MWT	Gamma Scan
12/31/03	F03-025-045 F03-025	7677-001	Н	Α.	01/18/04	01/22/04	MWT	Tritium in Soil
		7677-001	NI_L		01/18/04	01/22/04	TWM	Nickel 63 in Soil
*		7677-001	SR		01/15/04	01/22/04	MWT	Total Strontium in Soil
	·	7677-001	TC	A1	02/02/04	02/02/04	MWT	Technetium 99 in Soil
		7677-001	TH		01/16/04	01/22/04	MWT	Thorium, Isotopic in Soil
R312194-02	B17RXO	7677-002	С		01/12/04	01/22/04	MWT	Carbon 14 in Soil
12/17/03	216-B-58 #2 (12.4-12 FT) SOLID	7677-002	GAM		01/16/04	01/22/04	MWT	Gamma Scan
12/31/03	F03-025-010 F03-025	7677-002	Н		01/18/04	01/22/04	MWT	Tritium in Soil
		7677-002	NI_L		01/18/04	01/22/04	MWT	Nickel 63 in Soil
		7677-002	SR		01/15/04	01/22/04	MWT	Total Strontium in Soil
•		7677-002	TC	A1	02/02/04	02/02/04	MWT	Technetium 99 in Soil
		7677-002	TH		01/16/04	01/22/04	MWT	Thorium, Isotopic in Soil
312194-03	B17RX4	7677-003	С		01/12/04	01/22/04	MWT	Carbon 14 in Soil
12/17/03	216-8-58 #2 (17.5-20 FT) SOLID	7677-003	GAM		01/16/04	01/22/04	MWT	Gamma Scan
12/31/03	F03-025-011 F03-025	7677-003	Н		01/18/04	01/22/04	MWT	Tritium in Soil
	. · · · · · · · · · · · · · · · · · · ·	7677-003	NI_L		01/18/04	01/22/04	MWT	Nickel 63 in Soil
		7677-003	SR		01/15/04	01/22/04	MWT	Total Strontium in Soil
		7677-003	TC	A1	01/31/04	02/02/04	MWT	Technetium 99 in Soil
		7677-003	TH		01/16/04	01/22/04	MWT	Thorium, Isotopic in Soil
312194-04	B17RY1	7677-004	С		01/12/04	01/22/04	MWT	Carbon 14 in Soil
12/17/03	216-B-58 #2 (27.5-30 FT) SOLID	7677-004	GAM		01/16/04	01/22/04	MWT	Gamma Scan
12/31/03	F03-025-014 F03-025	7677-004	Н		01/18/04	01/22/04	MWT	Tritium in Soil
		7677-004	NI_L		01/18/04	01/22/04	MWT	Nickel 63 in Soil
		7677-004	SR		01/15/04	01/22/04	MWT	Total Strontium in Soil
		7677-004	TC	A1 '	02/02/04	02/02/04	MWT	Technetium 99 in Soil
	·	7677-004	TH		01/16/04	01/22/04	MWT	Thorium, Isotopic in Soil
312194-05	B17RY8	7677-005	С		01/12/04	01/22/04	MWT	Carbon 14 in Soil
12/17/03	216-B-58 #2 (22.5-25 FT) SOLID	7677-005	GAM		01/16/04	01/22/04	MWT	Gamma Scan
12/31/03	F03-025-013 F03-025	7677-005	Н		01/18/04	01/22/04	MWT	Tritium in Soil
		7677-005	NI_L		01/18/04	01/22/04	MWT	Nickel 63 in Soil
		7677-005	SR		01/15/04	01/22/04		Total Strontium in Soil
	•	7677-005	TC	A1	01/31/04	02/02/04		Technetium 99 in Soil
		7677-005	TH		01/16/04	01/22/04	MWT	Thorium, Isotopic in Soil

WORK SUMMARY
Page 1
SUMMARY DATA SECTION
Page 6

SDG <u>7677</u> Contact <u>Melissa C. Mannion</u>

WORK SUMMARY, cont.

Client <u>Hanford</u>
Contract <u>No. 630</u>
Case no <u>SDG H2479</u>

LAB SAMPLE	CLIENT SAMPLE ID						٠		
COLLECTED RECEIVED	LOCATION CUSTODY SAF No	MATRIX	PLANCHET	TEST	SUF- FIX	ANALYZED	REVIEWED	ВҮ	METHOD
R312194-06	B17T00		7677-006	С		01/12/04	01/22/04	MWT	Carbon 14 in Soil
12/18/03	216-B-58 #2 (52.5-55 FT)	SOLID	7677-006	GAM		01/16/04	01/22/04	MWT	Gamma Scan
12/31/03	F03-025-046 F03-025		7677-006	,H		01/18/04	01/22/04	MWT	Tritium in Soil
•			7677-006	NI_L		01/18/04	01/22/04	MWT	Nickel 63 in Soil
	·		7677-006	SR		01/15/04	01/22/04	MWT	Total Strontium in Soil
			7677-006	TC	A1	01/31/04	02/02/04	MWT	Technetium 99 in Soil
			7677-006	TH		01/16/04	01/22/04	мыт	Thorium, Isotopic in Soil
R312194-07	B17T03		7677-007	С		01/12/04	01/22/04	MWT	Carbon 14 in Soil
12/22/03	216-8-58 #2 (97.5-100FT)	SOLID	7677-007.	GAM		01/16/04	01/22/04	MWT	Gamma Scan
12/31/03	F03-025-047 F03-025		7677-007	Н	•	01/18/04	01/22/04	MWT	Tritium in Soil
	·		7677-007	NI_L		01/18/04	01/22/04	MWT	Nickel 63 in Soil
			7677-007	SR	•	01/15/04	01/22/04	MWT	Total Strontium in Soil
			7677-007	TC	A 1	02/02/04	02/02/04	MWT	Technetium 99 in Soil
			7677-007	TH		01/16/04	01/22/04	MWT	Thorium, Isotopic in Soil
R312194-08	Lab Control Sample		7677-008	С		01/12/04	01/22/04	MWT	Carbon 14 in Soil
		SOLID	7677-008	GAM		01/17/04	01/22/04	MWT	Gamma Scan
	F03-025		7 677-008	Н		01/18/04	01/22/04	MWT	Tritium in Soil
			7677-008	NI_L		01/18/04	01/22/04	MWT	Nickel 63 in Soil
			7677-008	SR	•	01/15/04	01/22/04	MWT	Total Strontium in Soil
			7677-008	TH .		01/16/04	01/22/04	MWT	Thorium, Isotopic in Soil
R312194-09	Method Blank		7677-009	C .		01/12/04	01/22/04	MWT	Carbon 14 in Soil
•		SOLID	7677-009	GAM		01/17/04	01/22/04	MWT	Gamma Scan
	F03-025	•	7677-009	Н		01/18/04	01/22/04	MWT	Tritium in Soil
			7677-009	NI_L		01/18/04	01/22/04	MWT	Nickel 63 in Soil
		-	7677-009	SR		01/15/04	01/22/04	MWT	Total Strontium in Soil
•	•	•	7677-009	TH		01/16/04	01/22/04	MWT	Thorium, Isotopic in Soil
R312194-10	Duplicate (R312194-01)		7677-010	C .		01/12/04	01/22/04	MWT	Carbon 14 in Soil
12/18/03	216-B-58 #2 (35-37.5 FT)	SOLID	7677-010	GAM		01/17/04	01/22/04	MWT	Gamma Scan
12/31/03	F03-025		7677-010	H		01/19/04	01/22/04	MWT	Tritium in Soil
			7677-010	NI_L		01/19/04	01/22/04	MWT	Nickel 63 in Soil
			7677-010	SR		01/15/04	01/22/04	MWT	Total Strontium in Soil
		•	7677-010	TH		01/16/04	01/22/04	MWT	Thorium, Isotopic in Soil

WORK SUMMARY
Page 2
SUMMARY DATA SECTION
Page 7

SDG 7677 Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client <u>Hanford</u>
Contract <u>No. 630</u>
Case no <u>SDG H2479</u>

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY SAF No	MATRIX	PLANCHET	TEST	SUF- FIX ANALYZED	REVIEWED BY	METHOD
R312194-12	Lab Control Sample F03-025	SOLID	7677-012	TC	01/30/04	02/02/04 MW	Technetium 99 in Soil
R312194-13	Method Blank	SOLID	7677-013	тс	01/31/04	02/02/04 MW	Technetium 99 in Soil
R312194-14 12/18/03 12/31/03	Duplicate (R312194-01) 216-B-58 #2 (35-37.5 FT F03-025) SOLID	7677-014	тс	02/02/04	02/02/04 MW	f Technetium 99 in Soil

TEST	SAF No	COUNTS METHOD	OF TESTS BY SAM REFERENCE		YPE MORE RE	BLANK	LCS	DUP SPIKE	TOTAL
С	F03-025	Carbon 14 in Soil	c14_cox_lsc	7		1	1	1	10
GAM	F03-025	Gamma Scan	GAMMA_GS	7		1	1	1	10
Н	F03-025	Tritium in Soil	906.0_H3_LSC	7		. 1	1	1	10
NI_L	F03-025	Nickel 63 in Soil	NI63_LSC	. 7		1	1	1	10
SR	F03-025	Total Strontium in Soil	SRTOT_SEP_PRECIP_GPC	. 7		1	1	1	10
TC	F03-025	Technetium 99 in Soil	TC99_TR_SEP_LSC	7		1	1	1	10
TH	F03-025	Thorium, Isotopic in Soil	THISO_IE_PLATE_AEA	7		1	1	1	10
TOTALS				49		7	7	7	70

WORK SUMMARY
Page 3
SUMMARY DATA SECTION
Page 8

7677-009

METHOD BLANK

Method Blank

	7677 Melissa C. Mannion	Client/Case no Contract		SDG_H2479
Lab sample id	R312194-09	Client sample id	Method Blank	
Dept sample id	7677-009	Material/Matrix		SOLID
	÷.	SAF No	F03-025	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	0.077	0.19	0.31	400	U	·Н
Carbon 14	14762-75-5	1.33	1.9	3.1	50	Ū	C
Nickel 63	13981-37-8	-0.416	1.3	2.1	30	ប	NI_L
Total Strontium	SR-RAD	-0.010	0.15	0.20	1.0	υ	SR .
Thorium 228	14274-82-9	0.082	0.083	0.31		ប	TH
Thorium 230	14269-63-7	-0.165	0.084	0.31	1.0	Ü	TH
Thorium 232	TH-232	-0.041	0.082	0.31	1.0	ប	TH
Potassium 40	13966-00-2	U		0.49		Ū	GAM
Cobalt 60	10198-40-0	U		0.048	0.050	υ .	GAM
Cesium 137	10045-97-3	U		0.048	0.10	$\ddot{\mathtt{U}}$	GAM
Radium 226	13982-63-3	· U	•	0.082	0.10	ប	GAM
Radium 228	15262-20-1	· U		0.19	0.20	υ	GAM
Europium 152	14683-23-9	U		0.10	0.10	ប	GAM
Europium 154	15585-10-1	Ü		0.14	0.10	Ū	GAM
Europium 155	14391-16-3	U		0.073	0.10	U	GAM
Thorium 228	14274-82-9	Ū		0.054		U	GAM
Thorium 232	TH-232	U		0.19		ប	GAM
Uranium 235	15117-96-1	U		0.12		Ū	GAM
Uranium 238	U-238	· U		5.4		U	GAM
Americium 241	14596-10-2	. п		0.096		υ	GAM

200-LW-1/LW-2 Characterization-Soil

QC-BLANK #46518

METHOD BLANKS
Page 1
SUMMARY DATA SECTION
Page 9

7677-013

METHOD BLANK

Method Blank

}	7677 Melissa C. Mannion	Client/Case no Contract	 <u> </u>	SDG_H2479
Lab sample id		Client sample id		
Dept sample id		Material/Matrix		SOLID

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Technetium 99	14133-76-7	-0.130	0.14	0.55	15	U	TC

200-LW-1/LW-2 Characterization-Soil

QC-BLANK #46627

METHOD BLANKS
Page 2
SUMMARY DATA SECTION
Page 10

7677-008

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7677	Client/Case no <u>Hanford</u> S	DG H2479
Contact Melissa C. Mannion	Contract No. 630	100
Lab sample id <u>R312194-08</u>	Client sample id Lab Control Sample	
Dept sample id <u>7677-008</u>	Material/Matrix	SOLID
	SAF No <u>F03-025</u>	

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	12.5	0.45	0.32	400		н	12.8	0.51	98	83-117	80-120
Carbon 14	1910	19	4.5	50		С	2130	85	90	85-115	80-120
Nickel 63	295	5.1	2.3	30		NI_L	272	11	108	82-118	80-120
Total Strontium	12.0	0.45	0.23	1.0		SR	11.4	0.46	105	82-118	80-120
Thorium 230	41.0	4.5	0.33	1.0		TH	46.4	1.9	88	83-117	80-120
Cobalt 60	5.11	0.31	0.14	0.050		GAM	5.35	0.21	96	76-124	80-120
Cesium 137	4.99	0.26	0.19	0.10	•	GAM	4.79	0.19	104	74-126	80-120

200-LW-1/LW-2 Characterization-Soil

QC-LCS #465	17			

LAB CONTROL SAMPLES
Page 1
SUMMARY DATA SECTION
Page 11

7677-012

LAB CONTROL SAMPLE

Lab Control Sample

	•	
SDG 7677	Client/Case no <u>Hanford</u> <u>SD</u>	G H2479
Contact <u>Melissa C. Mannion</u>	Contract No. 630	
Lab sample id <u>R312194-12</u>	Client sample id <u>Lab Control Sample</u>	
Dept sample id <u>7677-012</u>	Material/Matrix	SOL ID
	SAF No <u>F03-025</u>	
l		

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g		3σ LMTS (TOTAL)	
Technetium 99	110	2.9	0.54	15	·.	тс	109	4.4	101	83-117	80-120

200-LW-1/LW-2 Characterization-Soil

·			
QC-LCS #46626		4	

LAB CONTROL SAMPLES
Page 2
SUMMARY DATA SECTION
Page 12

SAMPLE DELIVERY GROUP H2479

DUPLICATE

B17RV3

SDG 7677		Client/Case no <u>Hanford</u> <u>SDG H2479</u>
Contact Melissa C. Mannion		Contract No. 630
DUPLICATE	ORIGINAL	
Lab sample id <u>R312194-10</u>	Lab sample id <u>R312194-01</u>	Client sample id <u>B17RV3</u>
Dept sample id <u>7677-010</u>	Dept sample id <u>7677-001</u>	Location/Matrix 216-B-58 #2 (35-37.5 FT) SOLID
	Received <u>12/31/03</u>	Collected/Weight <u>12/18/03 07:15</u> <u>307.2 g</u>
% solids <u>93.1</u>	% solids <u>93.1</u>	Custody/SAF No <u>F03-025-045</u> <u>F03-025</u>

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCî/g	QUALI- FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI- FIERS	RPD %	3 <i>σ</i> τοτ	PROT LIMIT
Tritium	322	3.2	0.49	400		Н	350	3.5	0.53		8	- 21	
Carbon 14	0.468	1.3	2.2	5Ó	U	С	-0.020	1.6	2.7	U	-	٠	
Nickel 63	-0.233	1-4	2.4	30	U	NI_L	-0.724	1.4	2.3	U			
Total Strontium	-0.097	0.13	0.19	1.0	U	SR	-0.022	0.12	0.16	U	- '		
Thorium 228	0.602	0.37	0.35			TH	0.466	0.29	0.27		25	132	
Thorium 230	0.416	0.37	0.35	1.0		TH	0.143	0.22	0 27	ប	98	231	
Thorium 232	0.878	0.38	0.35	1.0		TH	0.429	0.29	0.27		69	110	
Potassium 40	7.49	6.3	1.2			GAM	12.5	2.1	1,6		50	105	
Cobalt 60	υ		0.21	0.050	, U	GAM	U		0.17	U	-		
Cesium 137	U		0.15	0.10	U	GAM	U		0.13	U	-		
Radium 226	U		0.62	0.10	Ų	GAM	0.570	0.26	0.29		. 8	172	
Radium 228	U		1.1	0.20	U	GAM	0.532	0.47	0.58	ប	-		
Europium 152	U		0.27	0.10	U	GAM	U		0.26	υ	-		
Europium 154	ប		0.37	0.10	U	GAM	U	•	0,42	U			
Europium 155	Ü		0.21	0.10	U	GAM	U	•	0.27	U	-		
Thorium 228	0.867	0.27	0.19			GAM	0.688	0.12	0.13		23	65	
Thorium 232	U		1.1	*	U	GAM	0.532	0.47	0.58	U	-		
Uranium 235	Ų		0.34		υ	GAM	, U		0.40	U	_		
Uranium 238	U .		14		U	GAM	U		16	U ·	_	1.	
Americium 241	U		0.097		U	GAM	U		0.30	U			

200-LW-1/LW-2 Characterization-Soil

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DUPLICATES
Page 1
SUMMARY DATA SECTION
Page 13

7677-014

DUPLICATE

B17RV3

SDG 7677		Client/Case no <u>Hanford</u>	SDG H2479
Contact Melissa C. Mannion		Contract No. 630	<u> </u>
DUPLICATE	ORIGINAL		
Lab sample id <u>R312194-14</u>	Lab sample id <u>R312194-01</u>	Client sample id B17RV3	
Dept sample id <u>7677-014</u>	Dept sample id <u>7677-001</u>	Location/Matrix <u>216-B-58 #2 (35-37</u>	'.5 FT) SOLID
	Received <u>12/31/03</u>	Collected/Weight 12/18/03 07:15 30	7.2 g
% solids <u>93.1</u>	% solids <u>93.1</u>	Custody/SAF No <u>F03-025-045</u> <u>F0</u>	3-025

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI- FIERS	RPD %	3σ PROT TOT LIMIT
Technetium 99	-0.074	0.14	0.52	15	U	тс	0.036	0.18	0.57	U	-	

200-LW-1/LW-2 Characterization-Soil

QC-DUP#1A1 46628

DUPLICATES
Page 2
SUMMARY DATA SECTION
Page 14

7677-001

DATA SHEET

B17RV3

	· ·	7677 Melissa C. Mannion	Client/Case no Contract	
	Concact	METISSA C. Maintion	COILLIACE	NO. 030
	Lab sample id	R312194-01	Client sample id	B17RV3
	Dept sample id			216-B-58 #2 (35-37.5 FT) SOLID
1		12/31/03		12/18/03 07:15 307.2 g
ı	% solids	93.1	Custody/SAF No	F03-025-045 F03-025

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pC1/g	QUALI- FIERS	TEST
Tritium	10028-17-8	350	3.5	0.53	400		H
Carbon 14	14762-75-5	-0.020	1.6	2.7	50	U	С
Nickel 63	13981-37-8	-0.724	1.4	2.3	30	U	NIL
Total Strontium	SR-RAD	-0.022	0.12	0.16	1.0	υ	SR.
Technetium 99	14133-76-7	0.036	0.18	0.57	15	U	TC
Thorium 228	14274-82-9	0.466	0.29	0.27			TH
Thorium 230	14269-63-7	0.143	0.22	0.27	1.0	U	TH .
Thorium 232	TH-232	0.429	0.29	0.27	1.0		TH
Potassium 40	13966-00-2	12.5	2.1	1.6			GAM
Cobalt 60	10198-40-0	Ü		0.17	0.050	ប -	GAM
Cesium 137	10045-97-3	U		0.13	0.10	U	GAM
Radium 226	13982-63-3	0.570	0.26	0.29	0.10		GAM
Radium 228	15262-20-1	0.532	0.47	0.58	0.20	ប	GAM
Europium 152	14683-23-9	U		0.26	0.10	U	GAM
Europium 154	15585-10-1	U		0.42	0.10	U .	GAM
Europium 155	14391-16-3	, ਹ		0.27	0.10	υ.	GAM
Thorium 228	14274-82-9	0.688	0.12	0.13		•	GAM
Thorium 232	TH-232	0.532	0.47	0.58		U ·	GAM
Uranium 235	15117-96-1	u U	* *	0.40		υ	GAM
Uranium 238	U-238	U .		16		U	GAM
Americium 241	14596-10-2	U		0.30		̈υ	GAM

200-LW-1/LW-2 Characterization-Soil

DATA SHEETS
Page 1
SUMMARY DATA SECTION
Page 15

7677-002

DATA SHEET

B17RX0

	'		· ·		Į.
	SDG	7677	Client/Case no	Hanford	SDG H2479
	Contact	Melissa C. Mannion	Contract	No. 630	· · · · · · · · · · · · · · · · · · ·
					-
	Lab sample id	R312194-02	Client sample id	B17RX0	
	Dept sample id	7677-002	Location/Matrix	216-B-58 #2 (12.4-12	FT) SOLID
İ	Received	12/31/03	Collected/Weight	12/17/03 09:00 282.	<u>6 q</u>
	% solids	87.0	Custody/SAF No	F03-025-010 F03-	025

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	10.2	0.40	0.31	400	· .	H
Carbon 14	14762 - 75-5	1.12	1.6	2.7	50	ប	С
Nickel 63	13981-37-8	165	3.8	2.2	30		NÍ L
Total Strontium	SR-RAD	0.412	0.14	0.17	1.0		SR
Technetium 99	14133-76-7	0.104	0.24	0.53	15	U	TC
Thorium 228	14274-82-9	0.559	0.30	0.29			TH
Thorium 230	14269-63-7	0.372	0.30	0.28	1.0		\mathtt{TH}
Thorium 232	TH-232	0.894	0.38	0.28	1.0		\mathtt{TH}
Potassium 40	13966-00-2	15.6	6.7	8.2	*		GAM
Cobalt 60	10198-40-0	1700	5.0	1.6	0.050	٠	GAM
Cesium 137	10045-97-3	14.2	1.3	1.7	0.10		GAM
Radium 226	13982-63-3	U		2.4	0.10	υ	GAM
Radium 228	15262-20-1	บ		9.0	0.20	U	GAM
Europium 152	14683-23-9	Ū		2.7	0.10	ਧ	GAM
Europium 154	15585-10-1	U	•	3.5	0.10	U	GAM
Europium 155	14391-16-3	U.	**	1.6	0.10	υ	GAM
Thorium 228	14274-82-9	1.51	0.90	1.3		$x = e^{-\frac{1}{2}} \cdot e^{-\frac{1}{2}}$	GÁM
Thorium 232	TH-232	· U		9.0		υ .	GAM
Uranium 235	15117-96-1	ŭ .		2.5		Ū	GAM
Uranium 238	U-238	U		270	•	σ	GAM
Americium 241	14596-10-2	297	2.9	3.1		. *	GAM

200-LW-1/LW-2 Characterization-Soil

DATA SHEETS
Page 2
SUMMARY DATA SECTION
Page 16

7677-003

DATA SHEET

B17RX4

1 .	7677 Melissa C. Mannion	Client/Case no Contract	
Lab sample id Dept sample id Received % solids	7677-003 12/31/03	Collected/Weight	B17RX4 216-B-58 #2 (17.5-20 FT) SOLID 12/17/03 10:25 315.1 q F03-025-011 F03-025

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	40.8	0.75	0.32	400		H
Carbon 14	14762-75 - 5	0.424	1.3	2.2	50	U .	C ,
Nickel 63	13981-37-8	1.32	1.4	2.3	30	U	NI_L
Total Strontium	SR-RAD	-0.080	0.11	0.16	1.0	U	SR
Technetium 99	14133-76-7	-0.022	0.17	0.52	15	Ū	TC
Thorium 228	14274-82-9	0.379	0.26	0.32			TH
Thorium 230	14269-63-7	0.421	0.34	0.32	1.0		\mathtt{TH}
Thorium 232	TH-232	0.253	0.17	0.32	1.0	υ	TH.
Potassium 40	13966-00-2	υ	1	2.9		Ü	GAM
Cobalt 60	10198-40-0	0.794	0.13	0.11	0.050		GAM
Cesium 137	10045-97-3	υ		0.092	0.10	U	GAM
Radium 226	13982-63-3	U		0.21	0.10	U	GAM
Radium 228	15262-20-1	, U		0.47	0.20	U	GAM
Europium 152	14683-23-9	σ		0.21	0.10	U ·	GAM
Europium 154	15585-10-1	σ		0.25	0.10	σ	GAM
Europium 155	14391-16-3	Ų		0.16	0.10	U·	GAM
Thorium 228	14274-82-9	0.368	0.20	0.091			GAM
Thorium 232	TH-232	υ	2	0.47		U	GAM
Uranium 235	15117-96-1	บั		0.26		U	GAM
Uranium 238	U-238	U		12		U	GAM
Americium 241	14596-10-2	ប		0.074	e e e e e e e e e e e e e e e e e e e	U	GAM

200-LW-1/LW-2 Characterization-Soil

DATA SHEETS
Page 3
SUMMARY DATA SECTION
Page 17

7677-004

DATA SHEET

B17RY1

	7677 Melissa C. Mannion	Client/Case no Contract		SDG_H2479	
Lab sample id Dept sample id	R312194-04 7677-004 12/31/03	Client sample id Location/Matrix Collected/Weight Custody/SAF No	B17RY1 216-B-58 #2 12/17/03 14:	 9	_

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	798	8.0	0.83	400	· .	Н
Carbon 14	14762- 7 5 - 5	0.136	1.4	2.3	50	ប	C.
Nickel 63	13981 - 37-8	0.400	1.4	2.4	30	ט	NI_L
Total Strontium	SR-RAD	-0.026	0.11	0.16	1.0	Ū	SR
Technetium 99	14133-76-7	-0.058	0.16	0.55	15	. υ	TC
Thorium 228	14274-82-9	0.520	0.32	0.31			TH
Thorium 230	14269-63-7	0.520	0.32	0.38	1.0		TH
Thorium 232	TH-232	0.560	0.32	0.31	1.0		TH .
Potassium 40	13966-00-2	15.0	1.2	0.84	4		GAM
Cobalt 60	10198-40-0	10.4	0.28	0.12	0.050		GAM
Cesium 137	10045-97-3	U		0.11	0.10	Ū.	GAM
Radium 226	13982-63-3	0.892	0.22	0.22	0.10		GAM
Radium 228	15262-20-1	1.36	0.55	0.63	0.20		GAM
Europium 152	14683-23-9	U		0.21	0.10	U	GAM
Europium 154	15585-10-1	U		0.31	0.10	ប	GAM
Europium 155	14391-16-3	U		0.15	0.10	U	GAM
Thorium 228	14274-82-9	0.896	0.082	0.092			GAM
Thorium 232	TH-232	1.36	0.55	0.63			GAM
Uranium 235	15117-96-1	U		0.23		U	GAM
Uranium 238	U-238	₋U		17		U	GAM
Americium 241	14596-10-2	U		0.18	•	U	GAM

200-LW-1/LW-2 Characterization-Soil

DATA SHEETS
Page 4
SUMMARY DATA SECTION
Page 18

7677-005

DATA SHEET

B17RY8

	7677 Melissa C. Mannion	Client/Case no Contract	
Lab sample id Dept sample id	R312194-05	Client sample id Location/Matrix	
% solids			F03-025-013 F03-025

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	247	2.5	0.43	400		H
Carbon 14	14762-75-5	1.48	1.5	2.5	50	U ·	C
Nickel 63	13981-37-8	-0.195	1.4	2.4	30	U.	NIL
Total Strontium	SR-RAD	1.01	0.16	0.17	1.0		SR
Technetium 99	14133-76-7	0.081	0.18	0.56	15	ប	TC
Thorium 228	14274-82-9	0.377	0.23	0.29			TH
Thorium 230	14269-63-7	0.339	0.30	0.29	1.0		TH
Thorium 232	TH-232	0.489	0.30	0.29	1.0		TH
Potassium 40	13966-00-2	12.0	3.1	0.74			GAM
Cobalt 60	10198-40-0	3.50	0.15	0.083	0.050		GAM
Cesium 137	10045-97-3	U		0.077	0.10	T .	GAM
Radium 226	13982-63-3	0.450	0.091	0.12	0.10		GAM
Radium 228	15262-20-1	0.518	0.34	0.41	0.20		GAM
Europium 152	14683-23-9	υ		0.15	0.10	Ū	GAM
Europium 154	15585-10-1	U		0.22	0.10	U	GAM
Europium 155	14391-16-3	υ		0.12	0.10	υ .	GAM
Thorium 228	14274-82-9	0.560	0,067	0.072			GAM
Thorium 232	TH-232	0.518	0.34	0.41			GAM
Uranium 235	15117-96-1	υ	•	0.20		U	GAM
Uranium 238	U-238	U		11		ប	GAM
Americium 241	14596-10-2	ប		0.14		υ	GAM

200-LW-1/LW-2 Characterization-Soil

DATA SHEETS
Page 5
SUMMARY DATA SECTION
Page 19

7677-006

DATA SHEET

B17T00

· ·	7677	Client/Case no		SDG_H2479
Contact	Melissa C. Mannion	Contract	NO. 630	
Lab sample id	R312194-06	Client sample id	B17T00	<u> </u>
Dept sample id	7677-006	Location/Matrix	<u>216-B-58 #2 (52.</u>	5-55 FT) SOLID
Received	12/31/03	Collected/Weight	12/18/03 09:45	335.7 q.
% solids	95.3	Custody/SAF No	F03-025-046	F03-025

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI~ FIERS	TEST
Tritium	10028-17-8	240	2.4	0.43	400	<u> </u>	Н
Carbon 14	14762-75-5	0.228	1.7	2.8	50	U	C ,
Nickel 63	13981 - 37-8	-0.734	1.4	2.4	30	U .	NI L
Total Strontium	SR-RAD	-0.020	0.11	0.16	1.0	U	SR
Technetium 99	14133-76-7	0.012	0.26	0.55	15	υ	TC
Thorium 228	14274-82-9	0.472	0.32	0.30			TH
Thorium 230	14269-63-7	0.314	0.32	0.30	1.0		TH
Thorium 232	TH-232	0.432	0.24	0.30	1.0		TH,
Potassium 40	13966-00-2	16.7	0.73	0.37			GAM
Cobalt 60	10198-40-0	U		0.039	0.050	υ	GAM
Cesium 137	10045-97-3	U		0.036	0.10	U	GAM
Radium 226	13982-63-3	0.570	0.071	0.069	0.10		GAM
Radium 228	15262-20-1	0.924	0.16	0.14.	. 0.20		GAM
Europium 152	14683-23-9	U		0.077	0.10	υ .	GAM
Europium 154	15585-10-1	ប	•	0.12	0.10	υ.	GAM
Europium 155	14391-16-3	0.077	0.054	0.078	0.10	ប	GAM
Thorium 228	14274-82-9	0.765	0.042	0.035			GAM
Thorium 232	TH-232	0.924	0.16	0.14	•		GAM
Uranium 235	15117-96-1	Ü		0.099		U	GAM ·
Uranium 238	U-238	U		4.4		U ·	GAM
Americium 241	14596-10-2	U ·		0.082		U	GAM

200-LW-1/LW-2 Characterization-Soil

DATA SHEETS
Page 6
SUMMARY DATA SECTION
Page 20

7677-007

DATA SHEET

B17T03

	7677 Melissa C. Mannion	Client/Case no Contract		SDG H2479
Lab sample id Dept sample id Received % solids	7677-007 12/31/03	Client sample id Location/Matrix Collected/Weight Custody/SAF No	216-B-58 #2 (97. 12/22/03 10:05	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	-0.106	0.17	0.30	400	U	H.
Carbon 14	14762-75-5	0.319	1.6	2.7	50	U	C .
Nickel 63	13981-37-8	0.554	1.4	2.4	30	U	NI_L
Total Strontium	SR-RAD	-0.051	0.11	0.16	1.0	Ū	SR
Technetium 99	14133-76 - 7	-0.086	0.16	0.56	15	ប	TC
Thorium 228	14274-82-9	0.707	0.36	0.27	•		TH
Thorium 230	14269-63-7	0.176	0.28	0.34	1.0	υ	ΤH
Thorium 232	TH-232	0.671	0.29	0.27	1.0		TH
Potassium 40	13966-00-2	16.0	4.7	0.60			GAM
Cobalt 60	10198-40-0	υ .		0.097	0.050	U	GAM
Cesium 137	10045-97-3	U		0.055	0.10	Ŭ	GAM
Radium 226	13982-63-3	0.501	0.25	0.10	0.10	•	GAM
Radium 228	15262-20-1	0.961	0.34	0.24	0.20	•	GAM
Europium 152	14683-23-9	U		0.14	0.10	U	GAM
Europium 154	15585-10-1	U		0.18	0.10	ਧ	GAM
Europium 155	14391-16-3	U		0.11	0.10	Ų	GAM
Thorium 228	14274-82-9	1.00	0.17	0.062			GAM
Thorium 232	TH-232	0.961	0.34	0.24			GAM
Uranium 235	15117-96-1	U	•	0.18	• •	U	GAM
[°] Uranium 238	U-238	U		7.2	• •	U	GAM
Americium 241	14596-10-2	U	•	0.051		U	GAM

200-LW-1/LW-2 Characterization-Soil

DATA SHEETS
Page 7
SUMMARY DATA SECTION
Page 21

SAMPLE DELIVERY GROUP H2479

Test TH Matrix SOLID
SDG 7677
Contact Melissa C. Mannion

LAB METHOD SUMMARY

THORIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client <u>Hanford</u>
Contract <u>No. 630</u>
Contract <u>SDG H2479</u>

RESULTS

LAB SAMPLE ID	RAW SUF- TEST FIX PLANCE	ET CLIENT SAMPLE ID	Thorium 230		• . •			
Preparation	batch 7084-024							
R312194-01	7677-0	01 B17RV3	U			11 N		
R312194-02	7677-0	02 B17RX0	0.372					
R312194-03	7677-0	03 B17RX4	0.421			•		
R312194-04	7677-0	04 B17RY1	0.520	4.5				
R312194-05	7677-0	05 B17RY8	0.339			-		
R312194-06	7677-0	06 B17T00	0.314					
R312194-07	7677-0	07 B17T03	U .	•				
R312194-08	7677-0	08 LCS (QC ID=46517)	ok					
R312194-09	7677-0	09 BLK (QC ID=46518)	U					
R312194-10	7677-0	10 Duplicate (R312194-01)	ok					

METHOD PERFORMANCE

LAB SAMPLE ID	RAW SUF- TEST FIX		SAMPLE ID		MAX MD pCi/g		PREP FAC	DILU- TION			COUNT min			PREPARED	ANAL- YZED	DETECTOR
Preparation	batch 708	4-024	2σ prep	error	5.0 %	Reference	Lab I	Notebool	c 7084	pg.	024					
R312194-01		B17RV3			0.27	0.250			96		152		29	01/16/04	01/16	ss-056
R312194-02		B17RXO			0.28	0.250			96		152		30	01/16/04	01/16	SS-057
R312194-03		B17RX4			0.32	0.250			84		152		30	01/16/04	01/16	ss-058
R312194-04		B17RY1			0.38	0.250			88		155		30	01/16/04	01/16	SS-059
R312194-05	•	B17RY8			0.29	0.250			88		155		30	01/16/04	01/16	ss-060
R312194-06		B17T00			0.30	0.250			87		155		29	01/16/04	01/16	ss-061
R312194-07		B17T03			0.34	0.250			96		155		25	01/16/04	01/16	SS-062
R312194-08		LCS (QC	ID=46517;)	0.33	0.250			91		156			01/16/04	01/16	ss-063
R312194-09		BLK (Q	ID=46518	, ,	0.31	0.250			83		156	*		01/16/04	01/16	SS-065
R312194-10		•	ate (R31219 C ID=46519)		0.35	0.250		•	7 5.		156		29	01/16/04	01/16	SS-066
Nominal val	ues and lir	nîts fro	om method	-	1.0	0.250	-		20-10	5	150	-	180			

METHOD SUMMARIES

Page 1

SUMMARY DATA SECTION

Page 22

SAMPLE DELIVERY GROUP H2479

Test TH Matrix SOLID LAB METHOD SUMMARY, cont.

> THORIUM, ISOTOPIC IN SOIL ALPHA SPECTROSCOPY

Client	Hanford		
Contract	No. 630		
Contract	SDG H2479	_	

PROCEDURES	REFERENCE	THISO_IE_PLATE_AEA
	CP-061	Determination of Moisture Content in Solid Samples
	•	rev 1
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-900	Thorium in Water and Dissolved Solid Samples by
		Extraction Chromatography, rev 1
	CP-008	Heavy Element Electroplating, rev 7

AVERAGES ± 2 SD MDA 0.32 ± 0.068 YIELD 88 ± 14 FOR 10 SAMPLES

METHOD SUMMARIES Page 2 SUMMARY DATA SECTION Page 23

SDG 7677

Contact Melissa C. Mannion

Lab id EBRLNE Protocol <u>Hanford</u> Version Ver 1.0 Form DVD-LMS Version 3.06 Report date <u>02/02/04</u>

SAMPLE DELIVERY GROUP H2479

Test <u>SR</u> Matrix <u>SOLID</u>
SDG <u>7677</u>
Contact <u>Melissa C. Mannion</u>

LAB METHOD SUMMARY

TOTAL STRONTIUM IN SOIL
BETA COUNTING

Client <u>Hanford</u>
Contract <u>No. 630</u>
Contract <u>SDG H2479</u>

RESULTS

	ST FIX PLANCHET	CLIENT SAMPLE ID	Strontium					•	
Preparation bat	rch 7084-024			-		 			
R312194-01	7677-001	B17RV3	U				-		
R312194-02	7677-002	B17RX0	0.412						
R312194-03	7677-003	B17RX4	U			•			
R312194-04	7677-004	B17RY1	U ·						
R312194-05	7677-005	B17RY8	1.01						
R312194-06	7677-006	В17Т00	U						
R312194-07	7677-007	B17T03	U .						
R312194-08	7677-008	LCS (QC ID=46517)	ok				*		
R312194-09	7677-009	BLK (QC ID=46518)	U						
R312194-10	7677-010	Duplicate (R312194-01)	- U						1000

METHOD PERFORMANCE

LAB SAMPLE ID		SUF- FIX		SAMPLE ID		MDA pCi/g	ALIQ	PREP FAC		YIELD %	EFF %	COUNT min			PREPARED	ANAL- YZED	DETECTOR
Preparation	batcl	708	4-024	2σ prep	error	10.0 %	Reference	Lab I	Notebool	c 7084	pg.	024	 ·····	:			
R312194-01		. •	B17RV3			0.16	1.00			100		400		28	01/15/04	01/15	GRB-218
R312194-02			B17RXO			0.17	1,00			100		400		29	01/15/04	01/15	GRB-219
R312194-03			B17RX4			0.16	1.00			100		400		29	01/15/04	01/15	GRB-220
R312194-04			B17RY1			0.16	1.00			100		400		29	01/15/04	01/15	GRB-222
R312194-05			B17RY8			0.17	1.00			100		400		29	01/15/04	01/15	GRB-223
R312194-06			B17T00			0.16	1.00			100		400		28	01/15/04	01/15	GRB-224
R312194-07			B17T03			0.16	1.00			100		400		24	01/15/04	01/15	GRB-230
R312194-08			LCS (Q	ID=46517)	0.23	1.00			78		400			01/15/04	01/15	GRB-231
R312194-09			BLK (Q	C ID=46518	· ·	0.20	1.00			81		400			01/15/04	01/15	GRB-232
R312194-10				ate (R3121 C ID=46519	=	0.19	1.00		•	86		400		28	01/15/04	01/15	GRB-202
Nominal val	ues ar	nd li	mits fro	om method		1.0	1.00			30-10	5	100		180	, <u></u>		

METHOD SUMMARIES

Page 3
SUMMARY DATA SECTION

Page 24

SAMPLE DELIVERY GROUP H2479

Test <u>SR</u> Matrix <u>SOLID</u> SDG 7677 Contact Melissa C. Mannion

LAB METHOD SUMMARY, cont.

TOTAL STRONTIUM IN SOIL BETA COUNTING

Client	Hanford
Contract	No. 630
Contract	SDG_H2479

PROCEDURES	REFERENCE	SRTOT_SEP_PRECIP_GPC
	CP-061	Determination of Moisture Content in Solid Samples
	•	rev 1
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-381	Strontium in Solids, rev 1

AVERAGES ± 2 SD MDA 0.18 ± 0.047 FOR 10 SAMPLES YIELD <u>94</u> ± <u>18</u>

METHOD SUMMARIES Page 4 SUMMARY DATA SECTION Page 25

SAMPLE DELIVERY GROUP H2479

Test TC Matrix SOLID

SDG 7677

Contact Melissa C. Mannion

LAB METHOD SUMMARY TECHNETIUM 99 IN SOIL BETA COUNTING

Client <u>Hanford</u>
Contract <u>No. 630</u>
Contract <u>SDG H2479</u>

RESULTS

SAMPLE ID	RAW SUF- TEST FIX	PLANCHET	CLIENT SAMPLE ID	Technetium 99				
Preparation	batch 708	34-024						
R312194-01	A1	7677-001	B17RV3	υ		:		
R312194-02	A1	7677-002	B17RX0	U				
R312194-03	· A1	7677-003	B17RX4	. U	•		· .	· · · · · · · · · · · · · · · · · · ·
R312194-04	A1.	7677-004	B17RY1	. υ				
R312194-05	A1	7677-005	B17RY8	Ü				
R312194-06	A1	7677-006	B17T00	U		•		
R312194-07	A1	7677-007	B17T03	U	**			• •
R312194-12	,	7677-012	LCS (QC ID=46626)	ok				
R312194-13		7677-013	BLK (QC ID=46627)	U				V
R312194-14		7677-014	Duplicate (R312194-01)	- U				

METHOD PERFORMANCE

LAB SAMPLE ID		SUF- FIX		SAMPLE ID		MDA pCī/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	DRIFT KeV		PREPARED	ANAL- YZED	DETECTOR
Preparation	batci	h 708	4-024	2σ ргер ег	ror 10	0.0 %	Reference	Lab N	lotebool	k 7084	pg.	024			· · · · ·		*
R312194-01		A1	B17RV3	•		0.57	1.01			91		50		46	01/27/04	02/02	GRB-221
R312194-02		Α1.	B17RX0			0.53	1.02			90		50		47	01/27/04	02/02	GRB-222
R312194-03		A1	B17RX4			0.52	1.03			93		50		45	01/27/04	01/31	GRB-203
R312194-04		A1 .	B17RY1			0.55	1.01			91		50		47.	01/27/04	02/02	GRB-224
R312194-05		A1	B17RY8			0.56	1.01			92		50		45	01/27/04	01/31	GRB-202
R312194-06		A1	B17T00			0.55	1.00			92	•	50		44	01/27/04	01/31	GRB-203
R312194-07		A1	B17T03			0.56	1.04			90		50			01/27/04		GRB-221
R312194-12			LES (Q	ID=46626)		0.54	1.00			94		50			01/27/04	01/30	GRB-217
R312194-13			BLK (Q	ID=46627)		0.55	1.00			94		50					GRB-202
R312194-14		•		ate (R312194- : ID=46628)	01)	0.52	1.01			93		50		46	01/27/04		GRB-222
Nominal val	ues ar	nd lin	nits fro	om method		15	1.00		· .	20-105	5	50	 -	180		TUR.	

METHOD SUMMARIES
Page 5

SUMMARY DATA SECTION

Page 26

SAMPLE DELIVERY GROUP H2479

Test <u>TC</u> Matrix <u>SOLID</u>

SDG <u>7677</u> Contact <u>Melissa C. Mannion</u> LAB METHOD SUMMARY, cont. TECHNETIUM 99 IN SOIL

BETA COUNTING

Client <u>Hanford</u>
Contract <u>No. 630</u>
Contract <u>SDG H2479</u>

	PROCEDURES	REFERENCE	TC99_TR_SEP_LSC
		CP-021	Preparation of Tc-99m Tracer, rev 2
		CP-002	Q.C. Preparation, rev 4
		CP-003	Addition of Carriers and Tracers, rev 5
	·	CP-431	Technetium-99 Purification of Soil or Resin by
			Extraction Chromatography, rev O
		CP-008	Heavy Element Electroplating, rev 7
3			

AVERAGES ± 2 SD MDA 0.54 ± 0.034 FOR 10 SAMPLES YIELD 92 ± 3

METHOD SUMMARIES
Page 6
SUMMARY DATA SECTION
Page 27

Lab id EBRLNE

Protocol <u>Hanford</u>

Version Ver 1.0

Form DVD-LMS

Version 3.06

Report date <u>02/02/04</u>

SAMPLE DELIVERY GROUP H2479

Test GAM Matrix SOLID SDG 7677 Contact Melissa C. Mannion

LAB METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford Contract No. 630

Contract SDG H2479

RESULTS

R312194-10

RAW SUF-LAB SAMPLE ID TEST FIX PLANCHET CLIENT SAMPLE ID Cobalt 60 Cesium 137 Preparation batch 7084-024 7677-001 R312194-01 B17RV3 U U 7677-002 R312194-02 B17RX0 1700 14.2 R312194-03 7677-003 B17RX4 0.794 U R312194-04 7677-004 B17RY1 10.4 U R312194-05 7677-005 B17RY8 3.50 υ B17T00 R312194-06 7677-006 U U R312194-07 7677-007 B17T03 U U R312194-08 7677-008 LCS (QC ID=46517) ok ok R312194-09 7677-009 BLK (QC ID=46518) U Ų

Nominal values and limits from method

7677-010

200-LW-1/LW-2 Characterization-Soil

RDLs (pCi/g)

Duplicate (R312194-01)

0.050

0.10

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST		CLIENT	SAMPLE	ID		MDA pCi/g	ALIQ 9	PREP FAC		YIELD %		COUNT min	FWHM keV	 	PREPARED	ANAL- YZED	DETECTOR
Preparation	batch	7084	4-024	- 2σ p	гер ег	ror '	15.0 %	Referenc	e Lab	Noteboo	k 7084	pg.	024					· ·
R312194-01			B17RV3				0.95	_ 57.2					313		. 29	01/10/04	01/16	PD,03,00
R312194-02			B17RXO				14	59.8		•			233		. 30	01/10/04	01/16	PD,04,00
R312194-03			B17RX4				0.71	65.9				•	455		30	01/10/04	01/16	PD,07,00
R312194-04			B17RY1				0.92	_ 64.3		*			401		30	01/10/04	01/16	PD,04,00
R312194-05			B17RY8				0.65	74.8					989		30	01/10/04	01/16	PD,03,00
R312194-06			B17T00				0.30	_ 66.6				•	995		29	01/10/04	01/16	PD,04,00
R312194-07			B17T03				0.46	_ 75.3					1019		25	01/10/04	01/16	PD,07,00
R312194-08			LOS (Q	ID=46	17)		0.14	57.2					406			01/10/04	01/17	PD,03,00
R312194-09			BLK (QC	ID=465	18)		0.39	57.2					406			01/10/04	01/17	PD,04,00
R312194-10			Duplica	ate (R3	12194-	01)	0.96	57.2					407		30	01/10/04	01/17	PD,07,00
			(00	ID=465	19)										· .			
Nominal val	ues an	dilin	nits fro	om metho	od		0.05	0 57.2		•			100		180			

METHOD SUMMARIES Page 7 SUMMARY DATA SECTION

Page 28

Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-LMS

Version 3.06 Report date 02/02/04

SAMPLE DELIVERY GROUP H2479

Test <u>GAM</u> Matrix <u>SOLID</u> SDG <u>7677</u>

Contact Melissa C. Mannion

LAB METHOD SUMMARY, cont.

GAMMA SCAN
GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2479

PROCEDURES REFERENCE GAMMA_GS

CP-061 Determination of Moisture Content in Solid Samples rev 1

CP-100 Ge(Li) Preparation for Commercial Samples, rev 5

AVERAGES ± 2 SD MDA 1.9 ± 8.5

FOR 10 SAMPLES YIELD ±

METHOD SUMMARIES
Page 8
SUMMARY DATA SECTION
Page 29

SAMPLE DELIVERY GROUP H2479

Test C Matrix SOLID

SDG 7677

Contact Melissa C. Mannion

LAB METHOD SUMMARY

CARBON 14 IN SOIL
LIQUID SCINTILLATION COUNTING

Client <u>Hanford</u>
Contract <u>No. 630</u>
Contract <u>SDG H2479</u>

RESULTS

LAB RAW SUF-

SAMPLE ID TEST FIX PLANCHET CLIENT SAMPLE ID Carbon 14 Preparation batch 7084-024 R312194-01 7677-001 B17RV3 U R312194-02 7677-002 B17RX0 U R312194-03 7677-003 **B17**RX4 U 7677-004 R312194-04 B17RY1 U R312194-05 7677-005 B17RY8 IJ R312194-06 7677-006 B17T00 υ R312194-07 7677-007 B17T03 U R312194-08 7677-008 LCS (QC ID=46517) οk R312194-09 7677-009 BLK (QC ID=46518) U R312194-10 7677-010 Duplicate (R312194-01) Nominal values and limits from method RDLs (pCi/g) 50

nontrial values and thints from method

200-LW-1/LW-2 Characterization-Soil

METHOD PERFORMANCE

LAB SAMPLE ID		SUF- FIX	CLIENT	SAMPLE	ID		MDA pCi/	ALIQ g g	PREP FAC		YIELD %	EFF %			DRIFT KeV		PREPARED	ANAL- YZED	DETECTOR
Preparation	batci	708	4-024	2σ p	гер	error	10.0 %	Reference	Lab I	Notebool	c 7084	pg.	024						•
R312194-01			B17RV3				2.7	0.339			100	_	100			25	01/08/04	01/12	L'SC-007
R312194-02			B17RXO				2.7	0.338			100		100				01/08/04	•	
R312194-03			B17RX4				2.2	0.408			100		100			26	01/08/04	01/12	LSC-007
R312194-04			B17RY1				2.3	0.390			100		100			26	01/08/04		•
R312194-05			B17RY8				2.5	0.370			100		100			26	01/08/04	01/12	LSC-007
R312194-06		٠	B17T00		. •		2.8	0.329			100		100	•		25	01/08/04	01/12	LSC-007
R312194-07			B17T03				2.7	0.339			100		100			21	01/08/04	-	LSC-007
R312194-08			LCS (QC	ID=46	517)		4.5	0.300			100		<u>45</u>				01/08/04	•	
R312194-09			BLK (Q	ID=46	518)		3.1	0.300			100		100				01/08/04	•	
R312194-10			Duplica	ite (R3	1219	4-01)	2.2	0.424			100		100				01/08/04		LSC-007
			(00	ID=46	519)	•										·	,		:
Nominal valu	ies ar	d Lir	mits fro	m meth	od		50	0.300		~			50			180			

METHOD SUMMARIES
Page 9
SUMMARY DATA SECTION
Page 30

SAMPLE DELIVERY GROUP H2479

Test C Matrix SOLID
SDG 7677
Contact Melissa C. Mannion

LAB METHOD SUMMARY, cont.

CARBON 14 IN SOIL LIQUID SCINTILLATION COUNTING

Client	Han-	ford	
Contract	No.	630	
Contract	SDG	H2479	

PROCEDURES REFERENCE C14_COX_LSC

CP-251

Tritium/Carbon-14 Oxidation, rev 5

AVERAGES ± 2 SD MDA FOR 10 SAMPLES YIELD

MDA 2.8 ± 1.3 YIELD 100 ± 0

METHOD SUMMARIES
Page 10
SUMMARY DATA SECTION
Page 31

SAMPLE DELIVERY GROUP H2479

Test H Matrix SOLID

SDG 7677

Contact Melissa C. Mannion

LAB METHOD SUMMARY

TRITIUM IN SOIL
LIQUID SCINTILLATION COUNTING

Client <u>Hanford</u>
Contract <u>No. 630</u>
Contract <u>SDG H2479</u>

RESULTS

RAW SUF-SAMPLE ID TEST FIX PLANCHET CLIENT SAMPLE ID Tritium Preparation batch 7084-024 R312194-01 7677-001 350 **B17RV3** R312194-02 7677-002 B17RX0 10.2 R312194-03 7677-003 B17RX4 40.8 R312194-04 7677-004 B17RY1 798 R312194-05 7677-005 B17RY8 247 R312194-06 7677-006 B17T00 240 R312194-07 7677-007 B17T03 U 7677-008 R312194-08 LCS (QC ID=46517) ck R312194-09 7677-009 BLK (QC ID=46518) IJ R312194-10 7677-010 Duplicate (R312194-01) ok

Nominal values and limits from method

200-LW-1/LW-2 Characterization-Soil

RDLs (pCi/g) 400

METHOD PERFORMANCE

LAB SAMPLE ID		SUF-	CLIENT	SAMPLE	ID	MDA pCī/g	ALIQ g	PREP FAC		YIELD %	EFF %	COUNT min				PREPARED	ANAL- YZED	DETECTO
Preparation	batch	7084	-024	2σ μ	rep erro	r 10.0 %	Reference	Lab	Noteboo	k 7084	pg.	024				·		
R312194-01			B17RV3		•	0.53	20.6			33		44			31	01/17/04	01/18	LSC-005
R312194-02			B17RX0			0.31	21.6			31	•	120			32	01/17/04	01/18	LSC-005
R312194-03			B17RX4			0.32	20.7			33		120			32	01/17/04	01/18	LSC-005
R312194-04			B17RY1			0.83	20.6			33		20			32	01/17/04	01/18	LSC-005
R312194-05			B17RY8	•		0.43	22.1			32		59			32	01/17/04	01/18	LSC-005
R312194-06	-		B17T00			0.43	21.0			33		62	•		31	01/17/04	01/18	LSC-005
R312194-07			в17т03			0.30	21.5			33		120			.27	01/17/04	01/18	LSC-005
R312194-08		-	LCS (QC	ID=46	517)	0.32	20.0			33		120				01/17/04	01/18	LSC-005
R312194-09			BLK (QC	ID=46	518)	0.31	20.0			33		120		•		01/17/04	01/18	LSC-005
R312194-10				te (R3 : ID=46	12194-01; 519)	0.49	20.9			34		45			32	01/17/04	01/19	LSC-005
Nominal valu	Jes and	l lin				400	20.0	·		\ <u>**</u>	•	25			180	· · ·		

METHOD SUMMARIES
Page 11

SUMMARY DATA SECTION

Page 32

EBERLINE SERVICES/RICHMOND SAMPLE DELIVERY GROUP H2479

Test	H Matrix SOLID
SDG	7677
Contact	Melissa C. Mannion

LAB METHOD SUMMARY, cont.

TRITIUM IN SOIL LIQUID SCINTILLATION COUNTING

Client	Hanford
Contract	No. 630
Contract	SDG H2479

PROCEDURES REFERENCE 906.0_H3_LSC

CP-218

Tritium in Soil Samples by Azeotropic

Distillation, rev 1

AVERAGES ± 2 SD MDA __0.43 ± __0.33 FOR 10 SAMPLES YIELD 33 ± 2

METHOD SUMMARIES. Page 12 SUMMARY DATA SECTION Page 33

Lab id EBRLNE Protocol <u>Hanford</u> Version Ver 1.0 Form DVD-LMS Version 3.06 Report date <u>02/02/04</u>

SAMPLE DELIVERY GROUP H2479

Test NI L Matrix SOLID
SDG 7677
Contact Melissa C. Mannion

LAB METHOD SUMMARY

NICKEL 63 IN SOIL
LIQUID SCINTILLATION COUNTING

Client <u>Hanford</u>
Contract <u>No. 630</u>
Contract <u>SDG H2479</u>

RESULTS

RAW SUF-SAMPLE ID TEST FIX PLANCHET CLIENT SAMPLE ID Nickel 63 Preparation batch 7084-024 7677-001 B17RV3 R312194-01 165 R312194-02 7677-002 B17RXO R312194-03 7677-003 B17RX4 U R312194-04 7677-004 B17RY1 U R312194-05 7677-005 B17RY8 U 7677-006 R312194-06 B17T00 R312194-07 7677-007 B17T03 U R312194-08 7677-008 LCS (QC ID=46517) ok R312194-09 7677-009 BLK (QC ID=46518) Ų R312194-10 7677-010 Duplicate (R312194-01) Nominal values and limits from method RDLs (pCi/g)

METHOD PERFORMANCE

200-LW-1/LW-2 Characterization-Soil

LAB SAMPLE ID	RAW TEST		CLIENT	SAMPLE	ID	MDA pCi/		PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min				PREPARED	ANAL - YZED	DETECTOR
Preparation	batch	7084	4-024	2σ pi	ep erro	r 10.0 %	Reference	Lab I	Notebool	7084	pg.	024					1	
R312194-01			B17RV3		٠.	2.3	0.500			86		100			31	01/16/04	01/18	LSC-007
R312194-02			B17RX0			2.2	0.500			93		100		. ,	32	01/16/04	01/18	LSC-007
R312194-03			B17RX4			2.3	0.500			87		100			32	01/16/04	01/18	LSC-007
R312194-04			B17RY1			2.4	0.500			86		100			32	01/16/04	01/18	LSC-007
R312194-05			B17RY8			2.4	0.500			82		100			32	01/16/04	01/18	LSC-007
R312194-06			B17T00			2.4	0.500			87		100			31	01/16/04	01/18	LSC-007
R312194-07			B17T03			2.4	0.500			86		100			27	01/16/04	01/18	LSC-007
R312194-08			LCS (QC	ID=465	17)	2.3	0.500		-	93		100				01/16/04	01/18	LSC-007
R312194-09	•		BLK (Q	ID=465	18)	2.1	0.500			95		100				01/16/04	01/18	LSC-007
R312194-10			Duplica	ate (R31	2194-01) 2.4	0.500			85		100			32	01/16/04	01/19	LSC-007
* .			(00	ID=4,65	19)								,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					
Nominal valu	ues an	d Lin	nits fro	om metho	od	30	0.500			30-10	5	50			180			

METHOD SUMMARIES
Page 13
SUMMARY DATA SECTION
Page 34

SAMPLE DELIVERY GROUP H2479

Test NI L Matrix SOLID

SDG 7677

Contact Melissa C. Mannion

LAB METHOD SUMMARY, cont.

NICKEL 63 IN SOIL
LIQUID SCINTILLATION COUNTING

Client <u>Hanford</u>
Contract <u>No. 630</u>
Contract <u>SDG H2479</u>

PROCEDURES REFERENCE NI63_LSC

CP-061 Determination of Moisture Content in Solid Samples rev 1

CP-071 Soil Dissolution, > 1.0g Aliquot, rev 2

CP-280 Nickel-63 Purification, rev 0

AVERAGES ± 2 SD MDA 2.3 ± 0.21 FOR 10 SAMPLES YIELD 88 ± 8

METHOD SUMMARIES
Page 14
SUMMARY DATA SECTION
Page 35

Lab id <u>EBRLNE</u>

Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form <u>DVD-LMS</u>

Version <u>3.06</u>

Report date <u>02/02/04</u>

SAMPLE DELIVERY GROUP H2479

SDG 7677
Contact Melissa C. Mannion

REPORT GUIDE

Client	<u> Hanford</u>	
Contract	No. 630	-
Case no	SDG H2479	

SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

- * LAB SAMPLE ID is the lab's primary identification for a sample.
- * DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.
- * CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.
- * QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.
 - QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.
- * All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

REPORT GUIDES

Page 1

SUMMARY DATA SECTION

Page 36

SAMPLE DELIVERY GROUP H2479

SDG <u>7677</u> Contact <u>Melissa C. Mannio</u>

REPORT GUIDE

Client	Hanford	
Contract	No. 630	
Case no	SDG_H2479	

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

- * The preparation batches are shown in the same order as the Method Summary Reports are printed.
- * Only analyses of planchets relevant to the SDG are included.
- * Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.
- * The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

These qualifiers should be reviewed as follows:

- X Some data has been manually entered or modified. Transcription errors are possible.
- P One or more results are 'preliminary'. The data is not ready for final reporting.
- 2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

REPORT GUIDES

Page 2

SUMMARY DATA SECTION

Page 37

SAMPLE DELIVERY GROUP H2479

SDG 7677
Contact Melissa C. Mannion

REPORT GUIDE

Client	Hanford			
Contract	No.	630		
Case no	SDG	H2479		

WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

- * TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.
- * SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.
- * The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.
- * PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.
- * For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.
- * The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

REPORT GUIDES
Page 3
SUMMARY DATA SECTION
Page 38

SAMPLE DELIVERY GROUP H2479

SDG 7677
Contact Melissa C. Mannion

REPORT GUIDE

Client	Hani	ford	
Contract	No.	630	
Case no	SDG	H2479	

DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

- * TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.
- * The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

- * ERRORs can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.
- * A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.
- * When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

U The RESULT is less than the MDA (Minimum Detectable Activity).

REPORT GUIDES
Page 4
SUMMARY DATA SECTION
Page 39

SAMPLE DELIVERY GROUP H2479

SDG 7677

Contact Melissa C. Mannion

GUIDE, cont.

Client <u>Hanford</u>
Contract <u>No. 630</u>
Case no <u>SDG H2479</u>

DATA SHEET

If the MDA is blank, the ERROR is used as the limit.

- J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.
- B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

- L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.
- H Similar to 'L' except the recovery was high.
- P The RESULT is 'preliminary'.
- X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.
- 2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

* An MDA is underlined if it is bigger than its RDL.

REPORT GUIDES
Page 5
SUMMARY DATA SECTION
Page 40

SAMPLE DELIVERY GROUP H2479

SDG 7677 Contact <u>Melissa C. Mannion</u>

GUIDE, cont.

Client	Hanford			
Contract	No. 630			
Case no	SDG_H2479			

DATA SHEET

- * An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.
- * A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.
- * When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

REPORT GUIDES
Page 6
SUMMARY DATA SECTION
Page 41

SAMPLE DELIVERY GROUP H2479

SDG 7677
Contact Melissa C. Mannion

REPORT GUIDE

Client	Hanfor	d	
Contract	No. 63	0	
Case no	SDG H2	479	·

LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.
- * An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- REC (Recovery) is RESULT divided by ADDED expressed as a percent.
- * The first, computed limits for the recovery reflect:
 - 1. The error of RESULT, including that introduced by rounding the result prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

- 2. The error of ADDED.
- 3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- * The second limits are protocol defined upper and lower QC limits for the recovery.
- * The recovery is underlined if it is outside either of these ranges.

REPORT GUIDES
Page 7
SUMMARY DATA SECTION
Page 42

SAMPLE DELIVERY GROUP H2479

SDG <u>7677</u> Contact <u>Melissa C. Mannion</u>

REPORT GUIDE

Client	Hanford	
Contract	No. 630	
Case no	SDG H2479	

DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTs divided by their average expressed as a percent.

If both RESULTs are less than their MDAs, no RPD is computed and a '-' is printed.

For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

* The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTs prior to printing.

If this limit is labeled TOT, it includes the preparation error in the RESULTs. If labeled CNT, it does not.

This value reported for this limit is at most 999.

- * The second limit for the RPD is the larger of:
 - 1. A fixed percentage specified in the protocol.

REPORT GUIDES
Page 8
SUMMARY DATA SECTION
Page 43

SAMPLE DELIVERY GROUP H2479

SDG 7677
Contact Melissa C. Mannion

GUIDE, cont.

Client	Hani	ford	
Contract	No.	630	
Case no	SDG	H2479	

DUPLICATE

- 2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.
- * The RPD is underlined if it is greater than either limit.
- * If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

* The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

REPORT GUIDES
Page 9
SUMMARY DATA SECTION
Page 44

SAMPLE DELIVERY GROUP H2479

SDG 7677
Contact Melissa C. Mannion

REPORT GUIDE

Client	Hanford				
Contract	No.	630			
Case no	SDG	H2479			

MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.
 - If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.
- * An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- * REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.
- * The first, computed limits for the recovery reflect:
 - 1. The errors of the two RESULTs, including those introduced by rounding them prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

- 2. The error of ADDED.
- 3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- * The second limits are protocol defined upper and lower QC limits

REPORT GUIDES
Page 10
SUMMARY DATA SECTION
Page 45

SAMPLE DELIVERY GROUP H2479

SDG 7677
Contact Melissa C. Mannion

GUIDE, cont.

Hanford
No. 630
SDG_H2479

MATRIX SPIKE

for the recovery.

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

* The recovery is underlined (out of spec) if it is outside either of these ranges.

REPORT GUIDES
Page 11
SUMMARY DATA SECTION
Page 46

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0

Form DVD-RG

Version 3.06
Report date 02/02/04

SAMPLE DELIVERY GROUP H2479

SDG 7677
Contact Melissa C. Mannion

REPORT GUIDE

Client	Hanf	forđ	
Contract	No.	630	
Case no	SDG	H2479	· · · · · · · · · · · · · · · · · · ·

METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

* Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

* The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

* If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

The J and X flags are as on the data sheet.

- * Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.
- * Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

REPORT GUIDES
Page 12
SUMMARY DATA SECTION
Page 47

Lab id <u>EBRLNE</u>

Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form <u>DVD-RG</u>

Version <u>3.06</u>

Report date <u>02/02/04</u>

SAMPLE DELIVERY GROUP H2479

SDG 7677
Contact Melissa C. Mannion

GUIDE, cont.

Client	Hani	ford	·
Contract	No.	630	
Case no	SDG	H2479	

METHOD SUMMARY

means no amount ADDED was specified. 'LOW' and 'HIGH' correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

- * Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.
- * If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

MDAs are underlined if greater than the printed RDL.

- * Aliquots are underlined if less than the nominal value specified for the method.
- * Prepareation factors are underlined if greater than the nominal value specified for the method.
- * Dilution factors are underlined if greater than the nominal value specified for the method.
- * Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.
- * Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.
- * Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

REPORT GUIDES
Page 13
SUMMARY DATA SECTION
Page 48

SAMPLE DELIVERY GROUP H2479

SDG 7677
Contact Melissa C. Mannion

GUIDE, cont.

Client	Hani	Eord	
Contract	No.	630	
Case no	SDG	H2479	

METHOD SUMMARY

- * Count times are underlined if less than the nominal value specified for the method.
- * Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.
- * Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.
- * Days Held are underlined if greater than the holding time specified in the protocol.
- * Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1÷3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant

REPORT GUIDES
Page 14
SUMMARY DATA SECTION
Page 49

SAMPLE DELIVERY GROUP H2479

SDG 7677
Contact Melissa C. Mannion

GUIDE, cont.

Client	Hani	ord	·
Contract	No.	630	
Case no	SDG	H2479	

METHOD SUMMARY

results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

REPORT GUIDES
Page 15
SUMMARY DATA SECTION
Page 50

Poper Price Code TRENT, STEVE 375-5699 TRENT, STEVE 375-6699 TRENT, STEVE	FLUOR Hanfor	rd Inc.	CENT	CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST F03-025-045 Page 1 of						of <u>1</u>				
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Sample No. Matrix * Sample Date Sample Time Special Manufacture Support Time Special Manufacture Support Time	/ \		_	7		<i>)</i> :				•			1	
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No. of Container(s) Volume Sample (3) in See item (2) in Internation Sample No. Sample No. Matrix * Sample Date Sample Date Sample Time Sample No. Sample Date Sampl	Special Handling and/or S	Storage		Type of Container	3/	<u> </u>								
SAMPLE ANALYSIS Sample No. Matrix * Sample Date Sample Time Sign/Print Names CHAIN OF POSSESSION Sign/Print Names Sign/Print Names Sign/Print Names CHAIN OF POSSESSION Sign/Print Names SPECIAL INSTRUCTIONS SPECIAL INSTRUCTIONS SPECIAL INSTRUCTIONS The control by Special Spe	.			No. of Container(s)		1								
Sample No. Matrix * Sample Date Sample Time ate Sample Time Sample No. Matrix * Sample Date Sample Time Date Sample Time Sample No. Matrix * Sample Date Sample Time Date Sample Time Date Sample Sam				Volume	250 mL	250mL								,
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SOIL 12-18-05 Sign/Print Names CHAIN OF POSSESSION Sign/Print Names Additional By/Removed From Date/Time Poster By/Stored In				·										
CHAIN OF POSSESSION Sign/Print Names clinquished By/Removed From Date/Time Received By/Stored In Date/Time Date/Time Date/Time Received By/Stored In Date/Time Received By/Stored In Date/Time Date/Time Received By/Stored In Date/Time Received By/Stored In Date/Time Date/Time Received By/Stored In Date/Time	Sample No.	Matrix *	Sample Date	Sample Time	1.50							ar be the		
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Thorium-232}; Tritium - H3; Carbon-14; Strontium-89,90 - Total Sr Control of the control of t	,													
Thorium-232}; Tritium - H3; Carbon-14; Strontium-89,90 - Total Sr Control of the control of t														
Thorium-232}; Tritium - H3; Carbon-14; Strontium-89,90 - Total Sr Control of the control of t			-											
Thorium-232}; Tritium - H3; Carbon-14; Strontium-89,90 - Total Sr Control of the control of t														
Thorium-232}; Tritium - H3; Carbon-14; Strontium-89,90 - Total Sr Control of the control of t	. CHAIN OF POSSESSIO	N N	Sign/Print N	ames		SPE	CIAL INSTI	RUCTIO	NS 🗥	NO 12-11	u - 83		-	Matrix *
Comparison Date/Time Dat	Relinquished By/Removed From					1	laboratory is to	analyze p	H-within 24 I-D analysis	h ours of cample. See SAF COC	receipt. The labor Comments for b	oratory is to repor solding time issue	1 kerosene s.	
Mo-Oil Frider 12 12 12 10 25	ISB/c/48/m 121						_		-			<u>.</u>		
Sinquished By/Removed From Date/Time College Date/Time Date/Time Date/Time Received By/Stored In Date/Time Date/Time Date/Time Date/Time Received By/Stored In Date/Time Date/Time Date/Time Received By/Stored In Date/Time Date/	Mo-ail Frele 17	12/2/03			5-12/4	(2)	Nickel-63; Gam	ma Spec	Radium {R	adium-226, Radi	um-228}; Techn			W = Water
DL-Drun Liquids Date/Time Profession	Relinquished By/Removed From	Date/Time 274	Received By/Stored	ln D	ate/Time	7	orium-232}; Tri	tium - H3	Carbon-14;	Strontium-89,90	Total Sr			A≒Air
elinquished By/Removed From Date/Time Received By/Stored In Date/Time UCO (X) elinquished By/Removed From Date/Time Received By/Stored In Date/Time LABORATORY SECTION FINAL SAMPLE Disposal Method Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time				/ / /	rpt									DL=Drum Liquids
clinquished By/Removed From Date/Time Received By/Stored In Date/Time LABORATORY SECTION Received By Title Disposed By Date/Time	Relinquished By/Removed From	Date/Time '		12-31	iner i ime	(D)								Wi≃Wipe L=Liquid
LABORATORY SECTION Received By Title Date/Time FINAL SAMPLE Disposal Method Disposed By Date/Time	Relinquished By/Removed From	Date/Time											-	V=Vegetation X=Other
SECTION Disposed By Date/Time	Relinquished By/Removed From	Date/Time	Received By/Stored	ln D	ate/Time									
FINAL SAMPLE Disposal Method Disposed By Date/Time		7			Titl	le	*************************************			······································]	Date/Time	
1		ethod					Dispo	osed By					Date/Time	

A-6003-618(03/03)

FLUOR Ha	nford Inc.	C	ENTRAL PLATEAU	CHAIN O	F CUS	TODY/SA	MPLE A	NAL	YSIS REQUI	EST.	FO:	of <u>1</u>		
Collector Pope/Pfister/Hughes			ipany Contact RENT, STEVE	Telepho 373-5	me No. 689				roject Coordin RENT, SJ	ator	Price Code	SNEW (Data Tur	1 4
Project Designation 200-LW-1/LW-2 Charge	tyrization - Soil		pling Location 16-B-58 #2 (12.5-15 FT)		112	479 (7677		AF No. 03-025		Air Quality	v 🗆	2130	Days May
Ice Chest No.	-03-027	Field +)	l Logbook No. NF-10-330-1		CO. 1191	A 43ES10		M	Iethod of Shipi FEDERAL EX			12/301	03	
Shipped To EBERLINE SERVICES	(Formerly TMA)	. 1		Dec P	TR			,	Bill of Lading/A	Air Bill N	10. Se	e PTR		
POSSIBLE SAMPLE IL Padicactive Tie			Preservation	Cool 4C	No.	опе								
Special Handling and			Type of Container	G	G	/P	·····			·				
Special Handing and	or Sterage		No. of Container(s)	I I										
**************************************	· · · · · · · · · · · · · · · · · · ·	· ·	Volume	250mL Section (1) in	250 a See itea							<u> </u>		
	SAMPLE ANAI	LYSIS		Special Enocial Instructions.	Spe	cial		-						
			÷			ŀ		•		· ·				
Sample No.	Matrix *	Sample Date	Sample Time					2						
B17RX0	SOIL	12/17/0	3 0900	/	<u> </u>	(ļ
														
					 					 				
					-						·			
CHAIN OF POSSES	SION	Sign/Pri	nt Names	<u></u>	1-1	SPECIAL	INSTRUCT	TION	S = 1745					Matrix *
Relinquished By/Removed From		Received By/Ste Received By/Ste	nde#2 14/7	Date/Time VI (6) Date/Time (2)	70 745	range-organi	i ds li dila dile W um H ex - 719 0	v††11: 6: NO:	S 12.10 Charles	AF COC (12-10 titdes = 90	Comments for he - 673 30; Oil & Greas	olding time issu e = 4 13:1*	es.	S=Soit SE=Sediment SO=Solid SI=Sludge W = Water
Mo-026/Fridge Relinquished By/Remayed From Prof The was 12125	12/30/03 Date/Time 2/10 Thomas 12/30/03	Graffled Received By/Sto	ored In	AT 12/30 Date/Time	<i>101</i>				Carbon-14; Strontic			tiam 22, isotop		O=Oil A≖Air DS≖Drum Selids DL≖Drom Elguids
Relinquished By/Removed From	Date/Time	Received By/Sto		Patc/line	J									TaTissue WiaWipe L=Liquid V=Vegetation
Relinquished By/Removed From	Date/Time	Received By/Sto		Date/Time								÷		X=Other
Relinquished By/Removed From	Date/Time	Received By/Sto	ored In I	Date/Fime										
LABORATORY Received	d By			Ti	itle								Date/Time	
FINAL SAMPLE Dispose DISPOSITION	l Method						Disposed E	Ву					Date/Time	-

米AT 12/30/03

FLUOR Hanf	ord Inc.		CENT	RAL PLATEAU (CHAIN O	F CUS	TOD	Y/SAMPL	E ANA	ALYS	SIS REQU			03-025-011		of <u>1</u>
Collector Pope/Pfister/Hughes		С		Contact r, STEVE	Telepho 373-5						ject Coordi ENT, SJ	nator	Price Code	48N 84	Data Tt	urnaround
Project Designation 200-LW-1/LW-2 Character	rization - Soil	S	ampling 216-B-	; Location 58 #2 (17.5-20 FT)	H	124	79	(767	77)		F No. -025	4	Air Quali	ty 🗍	-45 *21 30	Days/4/7
Ice Chest No.	03-02F	F	ield Log	gbook No. -N-336-1		CO. 1191	A 43ES1	0			hod of Ship EDERAL E					
Shipped To EBERLINE SERVICES (F	Formerly TMA)			roperty No. 2	ee P	TR				Bill	of Lading/	Air Bill N	o. 9	ee /	7	
POSSIBLE SAMPLE HAZ		10		Preservation	Cool 4C	No	one			-			,			
hadioachue li Special Handling and/or		0		Type of Container	G S	G	/P	-								
			ין	No. of Container(s)	以		1									
				Volume	250ml	250)mL								ļ	
	SAMPLE ANAI	LYSIS			Scotten (1) in I Special Instructions.	Spe	n (2) in cial cial ctions.									
Sample No.	Matrix *	Sample D	ate	Sample Time			6798-1796 138-152		South of the							
B17RW7	SOIL	AT 18	1/8/0	3								:				
B17RX4	SOIL	12-17	-3	10:25		-									_	
· · · · · · · · · · · · · · · · · · ·			 :			-					·····					
		·														-
CHAIN OF POSSESSI	ON		Print Na	····			SPEC	AL INSTR	UCTIO	ONS	tm	5 12-11-	63			Matrix *
Relinquished By/Removed From Date/Time Date/Time Date/Time Date/Time	Received By	/Stored I	9e#2 12/17/10 No Street Thom Do X 1 23 (-0) Do Do Do Do Do Do Do Do Do D	nte/Time	/45 a/e3 O	(1) Cl (2) Ni	romium Hex. ckel-63; Gam	. 7196; N ma Spec	102/M - Radi	03 TMVs.	12 - 11 - 6 Hides - 903 226, Radiun	13 0 ; Oil & Grea : 1-228}; Techno	olding time issu se = 413.3 etium-99; Isotoj		S=Soil SE=Sodiment SO=Solid SI=Studge W = Water O=Oil A=Air DS=Dram Solids DL=Dram Liquids T=Tissue W1=Wipe L=Liquid V=Vegetation X=Other	
SECTION Disposal I	Method		·					Dispo	sed By		······································			•	Date/Time	
DISPOSITION	•						. •									`

FLUOR Hanford	Inc.								*41	12 30	o ዊ
Popo/Pfister/Hughes		CENTRAL PLATE	AU CHAIN OF	CUSTODA	Autoria de la companya della companya de la companya de la companya della company		· · · · · · · · · · · · · · · · · · ·				
Poled N.		Company Contact	Telepho	Te No	MPLE ANA	LYSIS REQI	JEST	F03	-025-014	Page <u>l</u> o	
200-), W-1/LW-2 Characterization	on - Soil	Sampling Location	373-5	689		Project Coord TRENT, SJ	inator	Price Code	94-19170 8N 94 - X 8D	Data Tura	round AF-1418/07
Silved To Silved	13-027	216-B-58 #2 (27.5-30 F Field Logbook No.	1) //o			SAF No. F03-025	1	Air Quality	, [1	45-10 31 30 5	NS.
EBERLINE SERVICES (Former POSSIBLE SAMPLE HAZARDS	ly TMA)	Field Logbook No.	2-3361	COA 119143ES10	- 1	Method of Ship FEDERAL F	XPRESS				
hadioactive The	S/REMARKS		Zee P	TIC		Bill of Lading	'Air Bill N	" Se	-PTK	<i>-</i>	
Special Handling and/or Storage	JO: BITICKS	Preservation	Cool 42	None							
- Total	ge .	Type of Container		G/P							
Photo:		No. of Container(s) Volume	23GmL	1 250mL							
s	AMPLE ANALYSIS		See hem (1) in S	ec item (2) in							
	- DO AMALYSIS		Special	Special Instructions.			<u> </u>				
Sample No. N	fatrix * Sample	Data									
	904	Sample Time 7.3 /4:00		A Company of the Comp	Alva III						
			-	-X							- V.
										40	
CHAIN OF POSSESSION											
usned By/Removed From Date/	Time Sign/P	rint Names							Pr. sagi		
Shed Budge [2/17/0]	130 MO-026	Stored in Date	/Time	SPECIAL INS	s to analyze with	within 24 hours o	2 - /10 -c	po eipt. The labor	atory is to repor	t-kerosene	Mextrix *
shed By/Removed From Date/T	2/03 Gres 77	Date	Time 0945	(1) Chronitum I	dex - 7196 NO	Tanaiysis, See S	AP COC Co	imments for ho	ding time issue	5.	SE=Sediment SO=Solid St=S-ludge
2.7.71049361.7.321.2	12/30/23 Received By/St	ored In Date	12/30/03 Time	(2) Niekel-63 ((Thoriun-232);					ium-99; Isotopi	c Thoffun	W ≈ Water O≃CDil A=Air OS=Drinn Solids
fied By/Removed From Date/Tim	ne Received By/Ste	$M = 12.31 \text{m}^2$	Time [OCO								DL=Dram Liqui T=Tissue Wi=Wipe
ed By/Removed From Date/Tim	Received By/Sto	Date/	l'ime							•	Ver Vegetation Low Other
ATORY Received By	Justin	eu in Date/I	ime								
11 4 4 4 4			Title								1
SAMPLE Disposal Method SITION										Date/Time	

* AT 12/30/03

FLUOR Hanford Inc.	CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST									F03-025-013 Page 1				
Collector Pope/Pfister/Hughes	Company TRENT	Contact , STEVE	Telepho 373-5				Project Coord TRENT, SJ	instor	Price Code	-8N 8H	Data Tu	rnargund		
Project Designation 200-LW-1/LW-2 Characterization - Soil	Sampling 216-B-5	Location 58 #2 (22,5-25 FT)	14	2479	(7677		SAF No. F03-025		Air Quality		45 F 21 30	Days DAYS		
1ce Chest No. 611-03-027	Field LogI	600k No. -10-336-)	COA 119143ES	10	· .	Method of Shi FEDERAL E	ment XPRESS						
Shipped To EBERLINE SERVICES (Formerly TMA)	Offsite Pro	operty No.	See	PTIL	e a company and many and an array of the		Bill of Lading	/Air Bill N	° 60	eft	R			
POSSIBLE SAMPLE HAZARDS/REMARKS RADIO PCTWL TILTO: BITRYO		Preservation	Cool 4C	None	-									
Special Handling and/or Storage	Т	'ype of Container	08	G/P										
Special randing and/or Storage	N	o. of Container(s)	18/	1					·					
		Volume	25 Night	250mL		٠	1				ļ. 			
SAMPLE ANALYSIS			See hen (1) in Special Instituctions.	See item (2) in Special Instructions.										
Sample No. Matrix * Samp	ole Date	Sample Time									1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -			
B17RY8 SOIL 12/	17/03	1330		X		and a contract of	ADMINISTRATION OF THE STATE OF	auckastado (sam	100	TA LONGSTON HOLDS		S PRICE TIC SINCESO HANGES		
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Relinquished By/Removed From Date/Time Received From Date/Time Property Received From Date/Time Received From Received From Date/Time Received From Date/Time Received From Received	gn/Print Na ed By/Stored In Hed By/Stored In Ed By/Stored In Hed By/Stored In Hed By/Stored In Hed By/Stored In	12-3-03	te/Time O	7 2 The la range 7.45 (1) C (2) N {Thou	organics from fl Inromium Hex - lickel-63; Gamn	nalyze p he WTP 7196; N na Spec	ONS IH within 24 hours of H-D analysis. See 102/NO3 - 353.2; S - Radium (Radium; Carbon-14; Stront	SAF COC C ulfides - 903 226, Radiun	omments for ho 0; Oil & Grease 1-228}; Technet	lding time issue : - 413.1	÷s.	Matrix * S=Soil SG=Sediment SO=Solid SirStudge W = Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue Wia-Wipe L=Liquid V=Vegetation X=Other		
Relinquished By/Removed From Date/Time Receive	ed By/Stored In	ı Da	te/Time											
LABORATORY Received By SECTION			Ti	itle							Date/Time			
FINAL SAMPLE Disposal Method DISPOSITION			-		Dispos	ed By					Date/Time			

* 12 30 03

FLUOR Hanfo	rd Inc.	CENT	TRAL PLATEAU	CHAIN OF	CUSTO	DY/SAMPL	E ANA	LYSIS REQU	JEST	F03	3-025-046	Page 1	
Collector Pope/Pfister/Hughes			iy Contact IT, STEVE	Telephor 373-56				Project Coord TRENT, SJ	inator	Price Code	8N.84	Data Tu	rnaround
Project Designation 200-LW-1/LW-2 Characteri	zation - Soil		g Location 3-58 #2 (52.5-55 FT)	H	2479	(7677	')	SAF No. F03-025	1	Air Quality	6 7 30	* <u>45</u> * 21.2	Days o bayc
ice Chest No.	53-027	Field Lo	Ogbook No. NF-W-33	ا ب	COA	114365	10	Method of Ship FEDERAL E	ment XPRESS				
Shipped To EBERLINE SERVICES (Fo	ormerly TMA)	Offsite I	Property No.	Su P	TR	,		Bill of Lading	Air Bill N	°. 50	2e PT		
Radioa (ALL TIL	ards/remarks LTd: BITT	2	Preservation	Cool 4C	None								
Special Handling and/or	Storage		Type of Container	G V	G/P								
	G		No. of Container(s)	1,0	1								
			Volume	2 \$\frac{1}{2} \frac{1}{2} \fr	250mL								
	SAMPLE ANAL	YSIS		See iton/(1) in Special Instructions.	See item (2) Special Instruction	[
Sample No.	Matrix *	Sample Date	Sample Time										Spirit Spirit
B17T00	SOIL	12-18-03	0945		\overline{X}				ļ	·	<u> </u>		
											-		
							<u> </u>			-			
Relinquished By/Removed From Relinquished By/Removed From And	Date/Time 1 S O S O S Date/Time	Received By/Stored Received By/Stored Received By/Stored Received By/Stored Received By/Stored Received By/Stored	In Dr. Jey #2 (2/18) In Dr. Jey Then In Dr. Jey In Dr.	ate/Time Ale/Time Ale/Time Ate/Time Ate/Time Ate/Time	δ (4) /S (2) (T)	ge organiss from Chromium Hex Nickel-63; Gam	analyze p the WTP - 7196; N ma Spec-	DNS H within 24 hours of H D analysis. See S O2/NO3. 353.2; Si Radium (Radium-). Carbon-14; Stronti	Fsample race AF COC Co offider - 9030 226, Radium	omments for hold 5 2 - 1 ce 5; Oil & Grease -228); Technetin	tory is to report ling time issues -411.1	i. .	Matrix * S=Soil SE=Scolinem SO=Solid SI=Shidge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Uquids T=Tissue W=Wipe L=Liquid V=Vegetation X=Other
***************************************		J. Courted Division											
LABORATORY Received B SECTION	y	•		Title					<u> </u>	· · ·		Pate/Time	
FINAL SAMPLE Disposal M DISPOSITION	lethod					Dispo	sed By		·		I	Date/Time	

* ST 12/30/03

FLUOR Hanf	ord Inc.	C	ENTRAL PLATE	EAU CHAIN O	F CUSTOI	DY/SAMPL	E ANA	LYSIS REQI	JEST	F0	3-025-047	Page 1	of <u>1</u>
Collector Pope/Pfister/Hughes		T	pany Contact RENT, STEVE	Telepho 373-	5689			Project Coord TRENT, SJ	inator	Price Code	8N 8#		irnaround
Project Designation 200-LW-1/LW-2 Character	ization - Soil	Sam 2	pling Location 97 (6-B-58 #2 (52.5- 55	TI) NEDW	12.2	<u> </u>		SAF No. F03-025	·	Air Qualit	y Acab	- 45 72-27	Days '40' 5 DAYS
Ice Chest No. G	-03-020	Z Field	l Loghook No. UF-10-334		COA 119143ES			Method of Shi FEDERAL E			~ ^		
Shipped To EBERLINE SERVICES (I		Offs	ite Property No.	Zu	M	·		Bill of Lading	/Air Bill N	" Su	LPTK		
Padloa CIVL TI		705	Preservation	/	None					·		·	
Special Handling and/or			Type of Contai	/	G/P								
		-	No. of Containe Volume	250/mL	250mL						-		
	SAMPLE ANA	LYSIS		Sociem (1) in Special Instructions.	See item (2) in Special Instructions,								
Sample No.	Matrix *	Sample Date	Sample T	ime // The									
B17T03	SOIL	12-22-	3 10:00	5 /	<u> </u>			·					2
							ļ		<u> </u>				
	<u> </u>	<u> </u>			<u> </u>				ļ				
	<u> </u>				<u> </u>		 -				<u> </u>	· 	<u> </u>
CHAIN OF POSSESS	J KON	Sign/Pri	nt Names		l Topra	CITATE TRANSPORT		N. 763	<u> </u>				l l
Relinquished By/Removed From	Pate/Time	Received By/St Received By/St Control Received By/St Received By/St	ored in 26 sile fra ored in ored in frank frank ored in ored in ored in		range (4) (1) (2) 1 (Tho	organics from Chromium Hex Vickel-63; Gam	the WTP - 7196; N ma Spec	H within 24 hours of ti-D analysis. See S	SAF COC C ilfides - 903 226, Radium	omments for hol 1; Oil & Grease -228}, Techneti	ding time issues. -413.1 TM	215-11	Matrix * S-Soil SB-Sediment SO-Solid SV-Studge W = Water CO-Oil A-Air DS-Dram Liquids T-Tissue WI-Wipp L-Lquid W-Vegetation X-Other
LABORATORY Received	Byj ^{ph} (managed)			Ti	tle		·			· · · · · · · · · · · · · · · · · · ·	Di	ate/Time	
SECTION										·		-	
FINAL SAMPLE Disposal DISPOSITION	Method					Dispo	sed By				D	ate/Time	

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RICHMOND, CA LABORATORY SAMPLE RECEIPT CHECKLIST

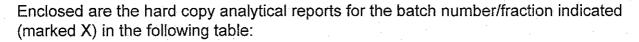
Coc No. FO3-DS-O10 O1 O13 O14 O45 W6 Container I.D. No. RP-03-027 Requested TAT (Days) 2 P.O. Received Yes [] No [] INSPECTION 1. Custody seals on shipping container intect? Yes [] No [] N/A [] 2. Custody seals on shipping container dated & signed? Yes [] No [] N/A [] 3. Custody seals on sample containers intect? Yes [] No [] N/A [] 4. Custody seals on sample containers dated & signed? Yes [] No [] N/A [] 5. Packing material is: Wet [] Dry [] Wet [] Dry
Requested TAT (Days) P.O. Received Yes [] No [] INSPECTION
INSPECTION 1. Custody seals on shipping container intact? Yes [L] No [] N/A [] 2. Custody seals on shipping container dated & signed? Yes [L] No [] N/A [] 3. Custody seals on sample containers intact? Yes [L] No [] N/A [] 4. Custody seals on sample containers dated & signed? Yes [L] No [] N/A [] 5. Packing material is: Wet [] Dry [] 6. Number of samples in shipping container: 7. Number of containers per sample: (Or see CoC) 8. Samples are in correct container Yes [] No [] 9. Paperwork agrees with samples? Yes [] No [] 10. Samples have: Tape [] Hazard labels [] Rad labels [] Appropriate sample labels [] 11. Samples are: In good cendition [] Leaking [] Broken Container [] Missing [] 12. Samples are: Preserved [] Not preserved [] DH Preservative 13. Describe any anomalies: NO TIMC (NO)CA7CO O A) CON TAWR O F RIZRY 14. Was P.M. notified of any anomalies? Yes [] No [] Date 2-3]-Q3 15. Received by Date: 2-3]-Q3 Customer Sample
1. Custody seals on shipping container intact? 2. Custody seals on shipping container dated & signad? 3. Custody seals on sample containers intact? 4. Custody seals on sample containers dated & signed? 5. Packing material is: 6. Number of samples in shipping container: 7. Number of containers per sample: 9. Paperwork agrees with samples? 10. Samples have: Tape [] Hazard labels [] Rad labels [] Appropriate sample labels [] 11. Samples are: In good condition [U Leaking [] Broken Container [] Missing [] 12. Samples are: Preserved [] Not preserved [] LIPH Preservative 13. Describe any anomalies: UO TIME [NOTATED OA] CONTAWRR OERITARY 14. Was P.M. notified of any anomalies? 15. Received by Carte Courted Sample Customer Sample Customer Sample
2. Custody seals on shipping container dated & signed? Yes [IT No I] N/A [] 3. Custody seals on sample containers intact? Yes [IT No I] N/A [] 4. Custody seals on sample containers dated & signed? Yes [IT No I] N/A [] 5. Packing material is: Wet [] Dry [IT N/A [] 6. Number of samples in shipping container: 7. Number of containers per sample: (Or see CoC
3. Custody seals on sample containers intact? 4. Custody seals on sample containers dated & signed? 5. Packing material is: 6. Number of samples in shipping container: 7. Number of containers per sample: 8. Samples are in correct container 9. Paperwork agrees with samples? 10. Samples have: Tape [] Hazard labels [] Rad labels [] Appropriate sample labels [] 11. Samples are: In good condition [] Leaking [] Broken Container [] Missing [] 12. Samples are: Preserved [] Not preserved [] DH Preservative 13. Describe any anomalies: NO TIME (NO)CATCO O A) CONTAWRR OF RIZRY 14. Was P.M. notified of any anomalies? 15. Received by Date: [] Date [] Time: [] OC () Customer Sample Customer Sample
5. Packing material is: 6. Number of samples in shipping container: 7. Number of containers per sample: 8. Samples are in correct container 9. Paperwork agrees with samples? 10. Samples have: Tape [] Hazard labels [] Rad labels [] Appropriate sample labels [] 11. Samples are: In good condition [] Leaking [] Broken Container [] Missing [] 12. Samples are: Preserved [] Not preserved [] PH Preservative 13. Describe any anomalies: NO TIME (NOICATED OA) CONTAWR OF RIFRY 14. Was P.M. notified of any anomalies? Yes [] Not [] Date 2-31-03 15. Received by Date: 2-31-03 Time: 1000 () Customer Sample
6. Number of samples in shipping container: 7. Number of containers per sample: 8. Samples are in correct container 9. Paperwork agrees with samples? 10. Samples have: Tape [] Hazard labels [] Rad labels [] Appropriate sample labels [] 11. Samples are: In good condition [U] Leaking [] Broken Container [] Missing [] 12. Samples are: Preserved [] Not preserved [] Broken Container [] Missing [] 13. Describe any anomalies: NO TIME (NOICATCO O A) CONTAWR OF RIZRY 14. Was P.M. notified of any anomalies? Yes [] No [] Date [] Date [] OC () Customer Sample Customer Sample
7. Number of containers per sample: (Or see CoC
8. Samples are in correct container 9. Paperwork agrees with samples? 10. Samples have: Tape [] Hazard labels [] Rad labels [] Appropriate sample labels [] 11. Samples are: In good condition [] Leaking [] Broken Container [] Missing [] 12. Samples are: Preserved [] Not preserved [] Preservative 13. Describe any anomalies: NO TIME INDICATED OA CONTAINER OF RIZRY 14. Was P.M. notified of any anomalies? Yes [] No [] Date 2-31-03 15. Received by Date: 2-31-03 Time: 10.0 ()
9. Paperwork agrees with samples? Yes [] No [] 10. Samples have: Tape [] Hazard labels [] Rad labels [] Appropriate sample labels [] . 11. Samples are: In good condition [U Leaking [] Broken Contelner [] Missing [] . 12. Samples are: Preserved [] Not preserved [] Preservative
10. Samples have: Tape [] Hazard labels [] Rad labels [] Appropriate sample labels [] 11. Samples are: In good condition [] Leaking [] Broken Container [] Missing [] 12. Samples are: Preserved [] Not preserved [] Preservative Preservative 13. Describe any anomalies: NO TIME INDICATED ON CONTAINER OF RIZEM 14. Was P.M. notified of any anomalies? Yes [] No [] Date 12-31-03 15. Received by Date: 12-31-03 Time: 100 () Customer Sample
11. Samples are: In good condition [] Leaking [] Broken Container [] Missing [] 12. Samples are: Preserved [] Not preserved [] DH Preservative 13. Describe any anomalies: NO TIME INDICATED ON CONTAINER OF RIZRY 14. Was P.M. notified of any anomalies? Yes [] No [] Date 2-31-03 15. Received by Date: 2-31-03 Time: [OC ()
12. Samples are: Preserved [] Not preserved [] Preservative
13. Describe any anomalies: NO TIME INDICATED ON CONTAWER OF RIFRY 14. Was P.M. notified of any anomalies? Yes [L] No [] Data [2-31-03] 15. Received by Date: 12-31-03 Time: 1000 Customer Sample Customer Sample
OF RIZRY] 14. Was P.M. notified of any anomalies? Yes [L] No [] Data 12-31-03 15. Received by Date: 12-31-03 Time: 10000 Customer Sample Customer Sample
14. Was P.M. notified of any anomalies? Yes [] No [] Data 12-31-03 15. Received by Date: 12-31-03 Time: 100 () Customer Sample Customer Sample
15. Received by
15. Received by
Customer Sample Customer Sample
BIFRXO 800
ill other samps E40
Ion Chamber Ser. No Calibration date
Alpha Meter Ser. No Calibration date
Beta/Gamma Meter Ser. No. 106 761 Calibration date 2-14-03



Mr. Steve Trent Fluor Hanford Inc. 825 Jadwin Ave. Richland, WA 99352

Subject: Contract No. 630
Analytical Data Package

Dear Mr. Trent:



	LvLI Batch #	0312L462
	SDG#	H2479
•	SAF#	F03-025
-	Date Received	12-31-03
•	# Samples	7
	Matrix	Soil
	Volatiles	
	Semivolatiles	
	Pest/PCB	
	DRO/GRO/KRO	
_	Herbicides	
	GC Alcohol	
	Metals	
	Inorganics	Χ

The electronic data deliverable (EDD) will be emailed shortly. If you have any questions, please don't hesitate to contact me at (610) 280-3012.

Sincerely,

Lionville Laboratory Incorporated

Orlette S. Johnson Project Manager 000001

r:\group\pm\orlette\tnu-hanford\data\fc_ltrs.doc



Lionville Laboratory, Inc. INORGANIC ANALYTICAL DATA PACKAGE FOR TNUHANFORD F03-025 H2479

DATE RECEIVED: 12/31/03 LVL LOT # :0312L462

· · · · · · · · · · · · · · · · · · ·						
CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
			 .			
B17RX0		•			•	· · · · · · · · · · · · · · · · · · ·
% SOLIDS	001	S	04L%S001	12/17/03	01/02/04	01/05/04
% SOLIDS	001 REP	S	04L%S001	12/17/03	01/02/04	01/05/04
CHROMIUM VI	001	S	04LVI001	12/17/03	01/09/04	01/09/04
NITRATE NITRITE	001	S.	04LN3001	12/17/03	01/08/04	01/08/04
OIL & GREASE BY GRAV	001	S	04LOG001		01/12/04	01/12/04
SULFIDE	001	S	04LSDA02	12/17/03	01/14/03	01/14/03
				4		
B17RX4			•			
% SOLIDS	002	s	04L%S001	12/17/03	01/02/04	01/05/04
CHROMIUM VI	002	S	04LVI001	12/17/03	01/09/04	01/09/04
NITRATE NITRITE	002	S	04LN3001	12/17/03	01/08/04	01/08/04
OIL & GREASE BY GRAV	002	S	04LOG001	12/17/03	01/12/04	01/12/04
SULFIDE	002	S	04LSDA02	12/17/03	01/14/03	01/14/03
					•	
B17RY8						
% SOLIDS	003	S	04L%S001	12/17/03	01/02/04	01/05/04
CHROMIUM VI	003	S	04LVI001	12/17/03	01/09/04	01/09/04
NITRATE NITRITE	003	S	04LN3001		01/08/04	01/08/04
OIL & GREASE BY GRAV	003	·S	04LOG001	12/17/03	01/12/04	01/12/04
SULFIDE	003	S	04LSDA02	12/17/03	01/14/03	01/14/03
B17RY1	,					
% SOLIDS	004	s	04L%S001	12/17/03	01/02/04	01/05/04
CHROMIUM VI	004	·s	04LVI001		01/09/04	01/09/04
NITRATE NITRITE	004	S	04LN3001		01/08/04	01/08/04
OIL & GREASE BY GRAV	004	s	04LOG001		01/12/04	01/12/04
SULFIDE	004	· s	04LSDA02		01/14/03	01/14/03
				- · · · · · · · · · · · · · · · · · · ·		
B17RV3						
& COLIDS	005	s	04L%S001	12/18/03	01/02/04	01/05/04
% SOLIDS CHROMIUM VI	005	. S	04L%S001		01/02/04	01/03/04
CITECUTE OF V.L.		3	ATTATOUT	12/10/03	07/07/04	0-70070=

Lionville Laboratory, Inc. INORGANIC ANALYTICAL DATA PACKAGE FOR TNUHANFORD F03-025 H2479

DATE RECEIVED: 12/31/03			LVL LOT # :0312L462				
CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	
NITRATE NITRITE OIL & GREASE BY GRAV SULFIDE	005 005 005	S S S	04LN3001 04LOG001 04LSDA02	12/18/03 12/18/03 12/18/03	01/08/04 01/12/04 01/14/03	01/08/04 01/12/04 01/14/03	
B17T00							
% SOLIDS CHROMIUM VI NITRATE NITRITE OIL & GREASE BY GRAV SULFIDE	006 006 006 006 006	\$ \$ \$ \$	04L%S001 04LVI001 04LN3001 04LOG001 04LSDA02	12/18/03 12/18/03 12/18/03 12/18/03 12/18/03	01/02/04 01/09/04 01/08/04 01/12/04 01/14/03	01/05/04 01/09/04 01/08/04 01/12/04 01/14/03	
B17T03							
% SOLIDS CHROMIUM VI CHROMIUM VI CHROMIUM VI CHROMIUM VI NITRATE NITRITE NITRATE NITRITE NITRATE NITRITE OIL & GREASE BY GRAV OIL AND GREASE BY GR OIL AND GREASE BY GR SULFIDE SULFIDE SULFIDE	007 007 007 REP 007 MS 007 MSD 007 007 REP 007 MS 007 007 REP 007 MS 007	000000000000000000000000000000000000000	04L%S001 04LVI001 04LVI001 04LVI001 04LV3001 04LN3001 04LN3001 04LOG001 04LOG001 04LOG001 04LSDA02 04LSDA02	12/22/03 12/22/03 12/22/03 12/22/03 12/22/03 12/22/03 12/22/03 12/22/03 12/22/03 12/22/03 12/22/03 12/22/03 12/22/03 12/22/03	01/02/04 01/09/04 01/09/04 01/09/04 01/09/04 01/08/04 01/08/04 01/12/04 01/12/04 01/12/04 01/12/04 01/14/03 01/14/03	01/05/04 01/09/04 01/09/04 01/09/04 01/08/04 01/08/04 01/08/04 01/12/04 01/12/04 01/12/04 01/12/04 01/14/03 01/14/03	
LAB QC:			•				
			•				
CHROMIUM VI CHROMIUM VI CHROMIUM VI NITRATE NITRITE NITRATE NITRITE OIL & GREASE BY GRAV OIL AND GREASE BY GR	MB1 BS MB1 BSD MB1 BS MB1 BS MB1 MB1 BS	S S W W S S	04LVI001 04LVI001 04LVI001 04LN3001 04LN3001 04LOG001 04LOG001	N/A N/A N/A N/A N/A N/A	01/09/04 01/09/04 01/09/04 01/08/04 01/08/04 01/12/04 01/12/04	01/09/04 01/09/04 01/09/04 01/08/04 01/08/04 01/12/04	

Lionville Laboratory, Inc. INORGANIC ANALYTICAL DATA PACKAGE FOR TNUHANFORD F03-025 H2479

DATE RECEIVED: 12/31/03

LVL LOT # :0312L462

CLIENT ID /ANALYSIS	LVL #	MTX	PREP, #	COLLECTION	EXTR/PREP	ANALYSIS
			•			· · · · · · · · · · · · · · · · · · ·
OIL AND GREASE BY GR SULFIDE SULFIDE	MB1 BSD MB1 MB1 BS	S	04LOG001 04LSDA02 04LSDA02	N/A N/A N/A	01/12/04 01/14/03 01/14/03	01/12/04 01/14/03 01/14/03



Analytical Report

Client: TNU-HANFORD F03-025 H2479

W.O.#: 11343-606-001-9999-00

LVL#: 0312L462

Date Received: 12-31-03

INORGANIC NARRATIVE

1. This narrative covers the analyses of 7 soil samples.

- 2. The samples were prepared and analyzed in accordance with the methods checked on the attached glossary.
- 3. Sample holding times as required by the method and/or contract were met with the exception of Sulfide that were received past hold.
- 4. The results presented in this report are derived from samples that met LvLl's sample acceptance policy with the exception of Sulfide as noted on the Sample Receipt Checklist.
- 5. The method blanks were within the method criteria.
- 6. The Laboratory Control Samples (LCS) were within the laboratory control limits. The duplicate LCS for Oil and Grease was within the 20% Relative Percent Difference (RPD) control limit.
- 7. The matrix spike recoveries for Chromium VI, Nitrate Nitrite, Oil and Grease and Sulfide were within the 75-125% control limits.
- 8. The replicate analyses for Percent Solids, Chromium VI, Nitrate Nitrite, Oil and Grease and Sulfide were within the 20% RPD control limit.
- 9. Results for solid samples are reported on a dry weight basis.

10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels

Laboratory Manager

Lionville Laboratory Incorporated

njp\i12-462

01-20-04

Date

The results presented in this report relate to the analytical testing and conditions of the samples upon receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 21 pages. A A D 5

Lionville Laboratory Incorporated WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

	<u>ASTM</u>	<u>SW846</u>	<u>OTHER</u>
% Ash	D2216-80		
% Moisture	D2216-80	en e	ILMO4.0 (e)
% Solids	$\sqrt{D2216-80}$		ILMO4.0 (e)
% Volatile Solids	D2216-80		
ASTM Extraction in Water	D3987-81/85		
BTU	D240-87		
CEC		9081	c
Chromium VI		√3060A/7196A	
Corrosivity by coupon by pH		1110(mod) 9045C	
Cyanide, Total		9010B	ILMO4.0 (e)
Cyanide, Reactive		Section 7.3/9014	
Halides, Extractable Organic		9020B	EPA 600/4/84-008
Halides, Total		9020B	EPA 600/4/84-008
EP Toxicity		1310A	
Flash Point		1010	
Ignitability		1010	
Oil & Grease		√9071A	1413.1 (mod.)
Carbon, Total Organic		9060	Lloyd Kahn (mod)
Oxygen Bomb Prep for Anions	D240-87(mod)	5050	
Petroleum Hydrocarbons, Total Rec	overable	9071	EPA 418.1
pH, Soil		9045C	
Sulfide, Reactive		Section 7.3/9030B	
Sulfide		$\sqrt{9030B \text{(mod)}}$	
Specific Gravity	D1429-76C/	D5057-90	
Sulfur, Total		9056	
Synthetic Preparation Leach		1312	
Paint Filter		9095A	
Other: Titrate Hetrite	Method: Ff	A 353.2 (med.)	<u> </u>
Other:	Method	· · · · · · · · · · · · · · · · · · ·	

Lionville Laboratory Incorporated

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

- U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.
- * = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.

MS = Matrix Spike.

MSD = Matrix Spike Duplicate.

REP = Sample Replicate

LC = Laboratory Control Sample.

NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

ANALYTICAL WET CHEMISTRY METHODS

- 1. ASTM Standard Methods.
- 2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).
- 3. Test Methods for Evaluating Solid Waste (USEPA SW-846).
- a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).
- b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).
- c. <u>Method of Soil Analysis</u>, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).
- d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).
- e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.
- f. Code of Federal Regulations.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/16/04

CLIENT: TNUHANFORD F03-025 H2479 WORK ORDER: 11343-606-001-9999-00 LVL LOT #: 0312L462

	• *				REPORTING	DILUTION
SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	LIMIT	FACTOR
*****	2222222222222222	222223222222222222	=======	=====		=======
-001	B17RX0	% Solids	86.8	ક	0.01	1.0
		Chromium VI	0.23 u	MG/KG	0.23	1.0
		Nitrate Nitrite	12.1	MG/KG	0.40	2.0
		Oil & Grease Gravimetri	1350	MG/KG	768	1.0
		Sulfide	33.0	MG/KG	22.3	1.0
-002	B17RX4	% Solids	96.7	8	0.01	1.0
		Chromium VI	0.21 u	MG/KG	0.21	1.0
	•	Nitrate Nitrite	1.5	MG/KG	0.17	1.0
	* .	Oil & Grease Gravimetri		MG/KG	690	1.0
		Sulfide	25.8	MG/KG	20.2	1.0
			•		$\delta = \{ 1, \dots, k-1 \}$	
-003	B17RY8	% Solids	97.0	*	0.01	1.0
	/·	Chromium VI	0.21 u	MG/KG	0.21	1.0
		Nitrate Nitrite	1.3	MG/KG	0.19	1.0
		Oil & Grease Gravimetri	688 u	MG/KG	688	1.0
		Sulfide	20.5 u	MG/KG	20.5	1,0
		•				
-004	B17RY1	% Solids	92.8	ę.	0.01	1.0
		Chromium VI	0.22 u	MG/KG	0.22	1.0
٠.		Nitrate Nitrite	82.5	MG/KG	3.9	20.0
	* * * * * * * * * * * * * * * * * * * *	Oil & Grease Gravimetri	718 u	MG/KG	718	1.0
		Sulfide	21.3 u	MG/KG	21.3	1.0
-005	B17RV3	% Solids	94.2	ક	0.01	1.0
		Chromium VI	0.21 u	MG/KG	0.21	1.0
		Nitrate Nitrite	46.6	MG/KG	1.6	10.0
		Oil & Grease Gravimetri	708 u	MG/KG	708	1.0
		Sulfide	20.7 u	MG/KG	20.7	1.0
÷ .						4
-006	B17T00	% Solids	96.5	용	0.01	1.0
		Chromium VI	0.21 u	MG/KG	0.21	1.0
		Nitrate Nitrite	5.9	MG/KG	0.33	2.0
		Oil & Grease Gravimetri	691 u	MG/KG	691	1.0
		Sulfide	20.6 u	MG/KG	20.6	1.0
		•				
-007	B17T03	% Solids	97.6	ક	0.01	1.0
	•	Chromium VI	0.20 u	•	0.20	1.0
		Nitrate Nitrite	0.81	MG/KG	0.19	1.0
		Oil & Grease Gravimetri	683 u	MG/KG	683	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/16/04

CLIENT: TNUHANFORD F03-025 H2479

LVL LOT #: 0312L462

WORK	ORDER:	11343-606-001-9999-00

		· · · · · · · · · · · · · · · · · · ·		REPORTING	DILUTION	
SAMPLE	SITE ID	TE ID ANALYTE		LIMIT	FACTOR	
======	**********		======= ======	=======	=======	
-007	B17T03	Sulfide	19.7 u MG/KG	19.7	1.0	

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/16/04

CLIENT: TNUHANFORD F03-025 H2479

LVL LOT #: 0312L462

WORK ORDER: 11343-606-001-9999-00

					REPORTING		DILU	TION	
SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	LIMIT		PACTO	OR	
======		~======================================		======	=========		.====	====	
BLANK10	04LVI001-MB1	Chromium VI	0.20 u	MG/KG	0.20	•		1.0	
BLANK10	04LN3001-MB1	Nitrate Nitrite	0.20 u	MG/KG	0.20			1.0	
BLANK10	04LOG001-MB1	Oil & Grease Gravimetri	·667 u	MG/KG	667			1.0	
BLANK10	04LSDA02-MB1	Sulfide	40.0 u	MG/KG	40.0			1.0	

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 01/16/04

CLIENT: TNUHANFORD F03-025 H2479 WORK ORDER: 11343-606-001-9999-00 LVL LOT #: 0312L462

1.0		•	SPIKED	INITIAL	SPIKED	11	DILUTION
SAMPLE	SITE ID	ANALYTE	SAMPLE	RESULT	AMOUNT	%RECOV	FACTOR (SPK)
======	=======================================			======	=====	======	=========
-007	B17T03	Soluble Chromium VI	4.5	0.20u	4.1	107.8	1.0
		Chromium VI MSD	1310	0.20u	1150	114.3	100
		Nitrate Nitrite	128	0.81	107	118.9	20.0
		Oil & Grease Gravimetr	7440	683 u	7000	106.3	1.0
		Sulfide	170	5.4	186	88.1	1.0
BLANK10	04LVI001-MB1	Soluble Chromium VI	3.9	0.20u	4.0	97.3	1.0
	•	Insoluble Chromium VI	1240	0.201	.1130	110.3	100
BLANK10	04LN3001-MB1	Nitrate Nitrite	5.5	0.20u	. 5.0	109.2	1.0
BLANK10	04LOG001-MB1	Oil & Grease Gravimetr	7330	667 u	6830	107.4	1.0
		Oil & Grease - Grav M	.7350	.667 u	6830	107.6	1.0
BLANK10	04LSDA02-MB1	Sulfide	339	40.0 u	372	91.0	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 01/16/04

CLIENT: TNUHANFORD F03-025 H2479 WORK ORDER: 11343-606-001-9999-00 LVL LOT #: 0312L462

SPIKE#1 SPIKE#2

SAMPLE	SITE ID	ANALYTE	%RECOV	%RECOV	%DIFF
*===== .	=======================================	=======================================	=====	=====	======
BLANK10	04LOG001~MBl	Oil & Grease - Grav	107.4	107.6	0.2

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 01/16/04

CLIENT: TNUHANFORD F03-025 H2479 WORK ORDER: 11343-606-001-9999-00 LVL LOT #: 0312L462

	•		INITIAL			٠.	DILUTION
SAMPLE .	SITE ID	ANALYTE	RESULT	REPLICATE	RPD		FACTOR (REP)
======			======		======		=======
-001REP	B17RX0	% Solids	86.8	86.6	0.27		1.0
-007REP	B17T03	Chromium VI	0.20u	0.20u	NC		1.0
		Nitrate Nitrite	0.81	0.77	4.8		1.0
	•	Oil & Grease Gravimetri	683 u	683 u	NC		1.0
		Sulfide	19.7 u	20.2-u	NC		1.0

Lionville Laboratory Use Only

03/264	16	7
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FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

O	VL	3
	LIONVILLE LABORATORY	INC.

								•										17					
Client :	TN	U-Hanf	ord	F03-025			Refrige	rator #										6					
Est. Final Proj							#/Type	Container	Liquid														
Project #			06-00	1-9999-M	0		,,,,p-	-	Solid									1:A6-	4.				
Project Conta	ct/Phor	ne #					Volume	,	Liquid												 		
Lionville Labo	ratory	Project Ma	nager	· · · · · · · · · · · · · · · · · · ·			·		Solid						.]		·	عزيد			 		
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MATRIX).					Matrix	<u> </u>	· ·					Ţ		Lionvi	lle Lab	oratory	Use Onl	у	Ţ			
CODES: S - Soil SE - Sediment SO - Solid	Lab ID	 - -	Client ID/De	escription		QC Chosen (V)	Matrix	Date Collected	Time Collected									ICR 6	ISFD IOGGR	· · · · · ·			4
SL - Sludge W - Water	10-1	12,00	240			MS MSD	5	12/17/03	0900														dermi.
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DL - Drum	003							HJ-	1330										1				35
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Special Instructi	lons:	SAF Moti	* () (, - 025		1.8	-04	1. TAT	= 18 per cli	days ext	Req	Due	(-	16-	04_		1) Sh Hand	les were: ipped —— Delivered #	_ or	Tar 1) Pa	mper Resis Present ickage Unbroke	stant Sea on Out Y or	ter N
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						<u> </u>	6										ceived in (ition Y		4) Sa	Unbroke Imple Y	n on	N	
	<u> </u>	Received	Date	e Time	Rel	linquished by		Received		ate	Tin	ne			es Betw			rly Presen Y o	r N		OC Reco	ple Red	c't
FeD E	Relinquished by Date Time Relinquished by Silers 1015 WA								IGIN, NR IT 1				Samples Labels and COC Record? Y or N NOTES:		5) Received Within Holding Times Y or N			ooler mp	Y or	N. .°C			

	03/24 460	<u></u>		· · · · · · · · · · · · · · · · · · ·			····				***************************************		
FLUOR Hanfo	ord Inc.	CEI	NTRAL PLATEAU (DDY/SAMPI	LE ANA	LYSIS RI	EQUEST	F03	3-025-010	Page <u>I</u>	of <u>1</u>
Collector Pope/Pfister/Hughes	- -		any Contact ENT, STEVE	Telephor 373-56	ie No. 89			Project Co TRENT, S.		Price Code	<i>v-14(19)</i> -81∫8#	Data Tu	rnaround
Project Designation 200-LW-1/LW-2 Character	ization - Soil	Sampl	ing Location -B-58 #2 (12.5-15 FT)				·	SAF No. F03-025		Air Quality	$\bigcup_{i=1}^{n} \mathcal{E}O$	045 2130	Assignation of the Contract of
ice Chest No.	03-028	Field I	Logbook No. JF-10-336-1		COA 119143	ES10		Method of FEDER	Shipment AL EXPRESS		WI	HB 12/3	0109
Shipped To MJ 12- EBERLINE SERVICES (F	10-03 Pecra	Offsite	e Property No.	Zee P	TR			Bill of La	ling/Air Bill	No. Se	ePTR		
POSSIBLE SAMPLE HAZ	ards/remarks TeTo: BIJRX	2	Preservation	Coal 4C	None	_/							
Special Handling and/or			Type of Container	G	G/P								
Special Handling and/or	Ditti age		No. of Container(s)		163	7							
			Volume	250mL	250m								
	SAMPLE ANALY	rsis		See item (1) in Special Instructions.	Sed by in (2 Special (Units action	2) in ons.							00015
Sample No.	Matrix *	Sample Date	Sample Time										
B17RX0	SOIL	12 17/0	3 0900	X	/								
			· ·						-				
		<u> </u>											
		·						_	<u> </u>			``	>
CHAIN OF POSSESSI	ON	Sign/Prin	Names	<u> </u>	lep.	PECIAL INST	PUCTIO	NS			<u> </u>	<u> </u>	Matrix *
Relinquished By/Removed From MO-026 / Frodge # Relinquished By/Removed From Ares Therman Strug Relinquished By/Removed From	Date/Time 2/17/13 636 Date/Time 0945 2/2/30/03 Date/Time 0945 Thung 12/30/03 Date/Time -3/03 10/5 Date/Time Date/Time Date/Time	Received By/Stor	ed in Da	ate/Time 12 30 c ate/Time 12 30 c ate/Time 20 5 ate/Time Titl	(1) (1) (1)	\ Chromum Hay	с - 7196, N шиа Spec -	O2/NO3 - 353 Radium {Rad	.2; Sulfides - 9 lium-226, Radi	cecipt. The labora Comments for hole 030; Oil & Grease nn-228}; Techneti - Total Sr	- 413.1 um-99; Isotopic	1.	S=Soit SE=Sediment SO=Soild
SECTION FINAL SAMPLE Disposal N	Method	· ·			- , 	Disp	osed By			· · · · · · · · · · · · · · · · · · ·	r	Date/Time	· · · · · · · · · · · · · · · · · · ·
DISPOSITION	· · · · · · · · · · · · · · · · · · ·		<u> </u>	·									

THE PERSON AND ADDRESS OF THE PERSON ADDRESS OF THE PERSON AND ADDRESS OF THE PERSON ADDRESS OF THE PE	•	CEN	TRAL PLATEAU	CHAIN OF	CUSTODY	//SAMPI.	FANA	VSIS DE	MIEST	IIV)	米 丸7 3-025-011	<u> </u>	*
FLUOR Hanford Collector Pope/Pfister/Hughes	Inc.	Сотра	ny Contact NT, STEVE	Telephon 373-56	e No.	MANUEL.		Project Coo TRENT, SJ		Price Code	8N 87	Data Tu	rnaround
Project Designation 200-LW-1/LW-2 Characterizat	tion - Soil		ng Location B-58 #2 (17.5-20 FT)					SAF No. F03-025		Air Qualit	y 🗆 gd	-4 5] -21 -30	Days DAYS
Ice Chest No.	3-028	Field L	.ogbook No. F-10-336-1		COA 119143ES1	0		Method of S FEDERAL	hipment , EXPRESS	3		- O	
Shipped To TYVI 12-11-0	n PLCO		Property No. (2le P	Th			Bill of Ladi	ng/Air Bill	No. 5	ee M		
POSSIBLE SAMPLE HAZAR			Preservation	Cool 4C	None	ŕ							
hadioachwelic Special Handling and/or St		D	Type of Container	G	G/P								
			No. of Container(s) Volume	250mL	250n/L		<u> </u>						
	SAMPLE ANAL	YSIS		See item (1) in Special Instructions.	Scotten (2) in Operial Instructions.								0 0 0
Sample No.	Matrix *	Sample Date	Sample Time							35. 37.4 31. 37.4			
B17RW7	SOIL	AT 12/8			i by rich in this this item.	Additional designation of the second	(P1 250, 988 a.2550	oraldisije Ribitarenu. 1984	CALLED COLUMN	** 130 Annual Communication (C	Actual Different Control of the Cont		
B17RX4	SOIL	12-17-3			-							,	
								<u>.</u>					
CHAIN OF POSSESSION	I	Sign/Print	Names		SPEC	IAL INST	RUCTIO	ONS	(1990)	Reil The lab	oveten in to see	ort borosene	Matrix *
Relinquished By/Removed From	Date/Time	Received By/Stor	Graff 2/2/	Date/Time 17/03/6 Date/Time 09	70 renge	organies fron hromium Hex lickel 63: Gar	r the WTP c - 7196; N	H-D analysis. 102/NO3 - 353 - Radium (Rad	See SAF COG 2; Sulfides - ium-226, Rog	C Comments for 1 9030; Oil & Grea lium-228); Techn	iolding time issu iso - 413.1	ies.	S=Soil SE=Sediment SO=Solid SI=Studge
	12/30/03 Date/Time 5/45	Fed	ed In I	Date/Time	(The	rnun 232), Tr	ritium - H3	: Carbon-14: S	rontium-89,9	() Total Sr		1	DS=Dram Sol DL=Dram Liq T=Tissue
Relinquished By/Removed From (2-3 Relinquished By/Removed From	Date/Time O/5 Date/Time	Received By/Stor	12-31-03	Oate/Time				•	·				WI=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From	Date/Time	Received By/Stor	<u> </u>	Date/Time									
LABORATORY Received By SECTION			: ·	Ti	tle							Date/Time	<u>.</u>
FINAL SAMPLE Disposal Met DISPOSITION	thod					Disp	osed By					Date/Time	

				·	····			·					<u> </u>	12/3	63
FLUOR Hanford	Inc.			PLATEAU C			ODY/SAMP	LE AN			EST	F03-	-025-013	Page <u>1</u>	of]
Collector Pope/Pfister/Hughes			pany Con RENT, STE		Telephor 373-56	i e No. 589				ject Coordi ENT, SJ	nator	Price Code	8N'9#	Data Tu	rnaround
Project Designation 200-LW-1/LW-2 Characterizati	on - Soil		pling Loca 16-B-58 #2	ation 2 (22.5-25 FT)						No. -025		Air Quality	de **	-45	Days
Ice Chest No. GPP 0	3-028	Field H	Logbeck	1.No. 1-336-1		COA 119143	3ES10			hod of Shir EDERAL E		_	William Control	0	
Shipped To 12-1 FBERLINE SERVICES (Form	1-03 Pecra	ons	ite Proper	ty No. 💪	De .	PT	R		Bill	of Lading/	Air Bill N	· Ger	117		
POSSIBLE SAMPLE HAZAR	DS/REMARKS	Ó	Pr	eservation -	Cool 4C	None	,								
			Туре	of Container	G	G/P								,	
Special Handling and/or Sto	rage		No. of	f Container(s)	1	i	<i>\\</i>				-	-			
				Volume	250mL	250m	}								
	SAMPLE ANALYS	SIS			See item (1) in Special Instructions.	Sec (cn/ pocin philyictic	2) in d ons.)1.7
Sample No.	Matrix *	Sample Dat	e	Sample Time			Market S				20.00		CATE OF		
B17RY8	SOIL	12-17	.01	1330	V	/									
									·						
		·								· 					
CHAIN OF POSSESSION		Sign/Pr	int Names	1	<u> </u>	S	PECIAL INST	RUCTI	ONS			_1		1	Matrix *
Relinquished By/Removed From Color Color Color Color	Date/Time	Received By/S Received By/S Received By/S Received By/S Received By/S	tored In Let MAS tored In tored In tored In	Deg Thom Do	er 12/36 ate/Time	8 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	The laboratory is (ange organics fro 1) Chromium He	to analyze m the WT ex - 7196; unma Spe	pH witt PH-D a NO2/No 	malysis. See : O3 - 353.2; Se ma r (Radium -	SAF COC Co ulfides - 9030 226, Rudium	eipt. The laborat omnichts for hold 3; Oil & Grense - -228}; Technetiu Total Sr	ing time issues 413.1 in 99; Isotopic	i.	S=Soil Si=Studge W = Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue Wi=Wipe L=Liquid V=Vegetation X=Other
SECTION FINAL SAMPLE Disposal Met	and						Dia	posed By	···					No. of the last of	
	10ri						Dis	nosed By					r	Date/Time	1

•				. /							水山		्राष्ठ
FLUOR Hanfor	d Inc.	CEN	NTRAL PLATEAU (CHAIN OF C	USTOD	Y/SAMPL	E ANA	LYSIS REQU	JEST	F0:	3-025-014	Page <u>l</u>	of - <u>1</u>
Collector Pope/Pfister/Hughes			any Contact ENT, STEVE	Telephone 373-568			J.	Project Coord TRENT, SJ	inator	Price Code	49~14m(の -8N 8H 米 8D	Data Tu	rnaround Days
Project Designation 200-LW-1/LW-2 Characteriz	ation - Soil		ing Location -B-58 #2 (27.5-30 FT)		·		1	SAF No. F03-025		Air Qualit	y 🗀 ,	42. 1 <i>21.30</i>	Day s TONS
Ice Chest No.	B-008	Field I	Logbook No. HOF-10-	3361	COA 119143ES1	.0		Method of Shi FEDERAL E					
Shipped To EBERLINE SERVICES (For	merio Tiora)		Property No.	ce PTI	2			Bill of Lading	/Air Bill I	Vo. 501	PTR		
POSSIBLE SAMPLE HAZA AUDIOUCH VL	RDS/REMARKS		Preservation	Cool 4C	None &		2						
Special Handling and/or S			Type of Container	G	G/L								
			No. of Container(s)	250mL	25Qtr/L								<u>∞</u>
			Volume		R							ļ	0
	SAMPLE ANAI	YSIS		See item (1) in S Special Instructions.	etaiten (2) in Special Instructions.								000
Sample No.	Matrix *	Sample Date	Sample Time			1110							
B17RY1	SOIL	12-17-3	14:00	\times /									
													b. 1. 6. 7
CHAIN OF POSSESSIO													
Relinquished By/Removed From	Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time	Received By/Stor	ed in Diagram 2 (2/17) ed in Diagram 5 (2/17) ed in Diagram 5 (2/17) ed in Diagram 5 (2/17) ed in Diagram 6 (2/17)	ate/Time /63 /63 /63 / ate/Time 094 ate/Time /63 /63 /63 / ate/Time ate/Time ate/Time	The la range (1) Cl	organics from romium Hex ckel-63; Gam	malyze pi the WTP - 7196; No ma Spec -	H within 24 hours of H-D analysis. See O2/NO3 - 353.2; S. Radium (Radium- Carbon-14; Stront	SAF COC (ulfides - 90. 226. Radiu	Comments for holes 30; Oil & Grease n=2281: Technet	lding time issues		Matrix * S=Soil SE=Sediment SO=Soid SI=Shulge ATVI ATVI DI=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other
LABORATORY Received By SECTION	· · · · · · · · · · · · · · · · · · ·			Title						<u> </u>	D	ate/Time	
FINAL SAMPLE Disposal Medisposition	ethod	· · · · · · · · · · · · · · · · · · ·				Dispo	sed By			· · · · · · · · · · · · · · · · · · ·	D	ate/Time	
A 6003 618(03/03)			•										

FLUOR Hanford	l Inc.	CEI	NTRAL PLATEAU	CHAIN O	E CUSTO	ODY/	SAMPLI	CANA	LVSIS	REOUE	ST	FO?	1-025-045	Page I	of I of
Collector Pope/Pfister/Hughes		Comp	any Contact ENT, STEVE	Telepho 373-5	ne No.					Coordin	otor -		SN-ZU	koles Bata Tui	
Project Designation 200-LW-1/LW-2 Characteriza	ation - Soil		ling Location i-B-58 #2 (35-37.5 FT)						SAF N F03-02		A	r Quality	XD Ψ		Dayspar 1
Icc Chest No.	23-00X	Field H	Logbook No. 10F-N-330	0 1	COA 119143	BES 10				l of Shipu ERAL EX			D ma	B 12/20	500
Shipped To EBERLINE SERVICES (For	merly TMA) RU	Offsite	e Property No.	Su	PTR	ح			Bill of	Lading/A	ir Bill No.	5	e PTE		
Possible sample Hazar		$\cap \emptyset Y \supset$	Prescryation	Cool 4C	None										
Special Handling and/or S		1 14 1	Type of Container	G	G/P	3	<u> </u>		1					 	
Special Manding and/or S	torage		No. of Container(s)		1	L								`	ು
			Volume	250mL	250m										©
	SAMPLE ANAL	YSIS		See item (1) i Special Instructions	in Sur Ven (Special Instruction	(2) in il ons.									0 0 0
				5000000000		AS CHAPT			300 W 100 M			DALVAS SA			AND THE SECTION
Sample No. B17RV3	Matrix *	Sample Date	Sample Time				Ab Ab selen					1 (1) (1) (1)	3 2 20 65 65		
D171.V3	SOIL	12-18-0	3 0715	X_							·	<u> </u>	-		
					-	_	· · · · · · · · · · · · · · · · · · ·								
CHAIN OF POSSESSIO		Sign/Prin	t Names		Si	PECIA	AL INSTR	UCTIO	NS	<u></u>					Matrix *
Relinquished By/Removed From Mo-226 Fit dg < #2 / Relinquished By/Removed From	Date/Time 8/03 / 43 0 Date/Time 2/50/03 0945 Date/Time 2945	Trecorved Lightsto	midge#2 12/18 red in Stray Than	Date/Time	10 945 (1	Fire labo ange or 1) Chro 2) Niel	pretory is to a genies from omium Hex	analyze p the WTP - 7196; N ma Spec	H-within H-D mad O2/NO3 Radium	vsis. See SA - 353.2; Suli (Radium-22	AF COC Con fides - 9030; 26, Radinm-	nments for hol Oil & Grease 228]; Technet	stery is to report ding time issues, - 413.1 imm-99, Isotopic	٠.	5=Soil SE=Sediment SO=Solid SI=Studge VI Vater O=Gil A+AD - CT DS=Drum Solids DL=Drum Liquids
Religionistical By Removed From	Date/Time	Received By/Sto	1231-33 1	Date/Time						4 .					T≃Tissue Wi≃Wipe L≃Liquid V=Vegetation
Relinquished By/Removed From	Date/Time	Received By/Sto	red In	Date/Time									* .		X=Other
Relinquished By/Removed From	Date/Time	Received By/Sto	red In	Date/Time							: 		<u></u>		
LABORATORY Received By SECTION				1	litle								D	ate/Time	
FINAL SAMPLE Disposal Me	thod						Dispo	sed By					D	ate/Time	

<u></u>				<u>''</u>			•				* UT 1	2/32/03	
FLUOR H	anford Inc.	CENT	TRAL PLATEAU (CHAIN OF C	CUSTOD	Y/SAMPL	E ANA	LYSIS RE(QUEST	F0	3-025-046	Page 1	
Collector Pope/Pfister/Hughes			y Contact T, STEVE	Telephone 373-568	No. 9			Project Coo TRENT, SJ	rdinator	Price Code	SN SH		F130 K10
Project Designation 200-LW-1/LW-2 Chara	acterization - Soil		g Location 3-58 #2 (52.5-55 FT)					SAF No. F03-025		Air Qualit	y [*] C ^{SD} ,*	4 5 21 -30	Days MA
Ice Chest No.	2-03-028	Field Lo	gbook No. F-N-33L		COA	4365	SI ()	Method of S FEDERAL	hipment . EXPRES:	s			
Shipped To EBERLINE SERVICE	S (Farmerly TMA) Po		Property No.	De OT	17	100-		Bill of Ladi			1 PT	2	
POSSIBLE SAMPLE	HAZARDS/REMARKS					<u></u>		1					
Ladioactiv	e TIRTO: E	20105	Preservation	Cool 4C	None G/P		ļ		_		<u> </u>	<u> </u>	
Special Handling and	the state of the s		Type of Container	1					_			<u> </u>	3
			No. of Container(s) Volume	250mL	250ml	_	<u> </u>						0 0
				See item (1) in S Special	Special								
	SAMPLE ANAI	YSIS			Instructions.]						
					<i> </i>								
Sample No.	Matrix *	Sample Date	Sample Time										
B17T00	SOIL	12-18-03	0945	X									
											•		
······································													\$
								•		- 44			
CHAIN OF POSSI	ESSION	Sign/Print l	Vames	<u></u>	SPEC	IAL INSTR	RUCTIO	ONS -	WD 12	eccipt. The labor	<u></u>	······································	Matrix *
Relinquished By/Removed Fro	om Date/Time 2/18/03 /430	MO-026/fn	· · · · · · · · · · · · · · · · · · ·	te/Time -/03 /43 o	1	boratory is to organics from	analyze p the WTP	dH within 24 houl H-D analysis. So	s of sample research	Comments for he	atory is to repor Iding time issue:	kerosene s.	S≃Soit SE≈Sediment SO≃Solid
Relinquished By/Removed Fro Mo-026/Fredq	c #2 12/20/03	Gree They		ne/Time 094 ne 12/301	1 (C) A	ickel-63; Gam	ıma Spec	- Radium (Radio	m-226, Radi	030; Oil & Grease um-238}; Technol	: - 413.1 tium-99; Isotopi	Thorium >	SI-Sindge
Relinquished By/Removed Fro	Date/Time 0943	Received By/Stored	. U.	ite/Time	(Tho	10H1-2327, 11H	amii - 113	; Carbon-14; St ix	mmai=93,30	101 <u>al Nr</u>		<i>l</i>	DS=Drum Solids DL-Drum Liquids
Religious New Removed Fro		Received By/Stored	The same of the same of the	s /0/5							·		T⇒Tissue WI=Wipa L=Liquid
Relinquished By/Removed Fro		Received By/Stored	IIC D	nte/Time							:		V=Vegetation X=Other
Relinquished By/Removed Fro	nn Date/Time	Received By/Stored	in D	ite/Time					<u>.</u> .				
LABORATORY Rece SECTION	ived By			Title							,	Onte/Time	
FINAL SAMPLE Disp DISPOSITION	osal Method					Dispo	osed By					Date/Time	

FLUOR Hanford Inc.		CEN	CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS RE							F03	3-025-047	Page <u>l</u>	of
Pope/Pfister/Hughes		TRE	Company Contact Telephone No. TRENT, STEVE 373-5689					Project Coordinator TRENT, SJ		Price Code	81 8H	Data Tu	rna
Project Designation 200-LW-1/LW-2 Characterization - Soil			Sampling Location 7.5-100 FT 216-B-58 #2 (52 5-58 FT) (24 (2-22-3					AF No. 03-025	·	Air Quality \Box \Box		045 B	
			Field Logbook No. HUF-N-386 1		COA 119143ES10			lethod of Shir FEDERAL E	ment XPRESS		O MAR	3 12/3	ַסוכי
			Offsite Property No.			R			'Air Bill	No. Se	e PT	Te	
POSSIBLE SAMPLE HAZA		_	Preservation	Cool 4C	None Ø	1							
Hadloachellicto: BITO5 Special Handling and/or Storage			Type of Container	G	G/I			-				·	+
			No. of Container(s)	1	N								C.
			Volume	250mL	269mL								U
	SAMPLE ANALY	rsis		See item (1) in Special Instructions.	See Nem (2) in Special Instructions.			t .					U
Sample No.	Matrix *	Sample Date	Sample Time									alas esperante	((6.)
B17T03		2.22.		χ				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					
													-
Relinquished By/Removed From Relinquished By/Removed From Relinquished By/Removed From Relinquished By/Removed From	Date/Time 6745 Date/Time 6745 Date/Time 6745	Received By/Store Received By/Store	ed in Do # De # / Day gd in Day Harms gd in Day	ate/Time/25 ate/Time 25/2	(1) C	organics from hromium Hex fickel 63; Gam	analyze pH v the WTPH-1 - 7196; NO2 ma Spec - R	vithin 24 hours of analysis. See S	IAF COC Ilfides - 90 226, Radio	cecipt. The labora Comments for hole 30; Oil & Grease in 228]; Technolic Total Sr	ding time issues.		S=S0 SE=: SO=: SI=S W = O=O A=A
Received by Removed From Date/Time Received by 12-31-03 1015		Received By/Store	nd In 1231-13	1015		·							DS=Dn DL=Dn T=Tiss WI=WI L=Liqu V=Vege X=Othe
Relinquished By/Removed From Date/Time Received By/		Received By/Store	ed In Da										
LABORATORY Received By SECTION		- !		Tit	ie	· · · · · · · · · · · · · · · · · · ·					Da	ite/Time	
L	iliod	,					sed By					ate/Time	·

Lionville Laboratory Incorporated SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TOW HANFO Date: 12-31-03 Purchase Order / Project# / SAF#/SOW#/Release #: F03-025 LvLI Batch #: Sample Custodian: NOTE: EXPLAIN ALL DISCREPANCIES Carrier Airbill# Samples Hand Delivered or Shipped 2. Custody seals on coolers or shipping □ No ☐ No Seals Comments container intact, signed and dated? 3. Outside of coolers or shipping containers are ☐ Yes □ No free from damage? 4. All expected paperwork received (coc and i⊠ Yes □ No other client specific information) sealed in plastic bag and easily accessible? Cooler# GPP-03-028 Temp / 5. Samples received cooled or ambient? Custody seals on sample containers intact, □ No ☐ No Seals signed and dated? coc signed and dated? □ No Sample containers are intact? □ No All samples on coc received? All samples □ Xes □ No received on coc? 10. All sample label information matches coc? □ Y es □ No 11. Samples properly preserved? □ No rde rec d pass 12. Samples received within hold times? Short holds taken to wet lab? 13. VOA, TOC, TOX free of headspace? ☐ Yes □ No DN/A 14. QC stickers placed on bottles designated by ☐ Yes □ No □ N/A client? 15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy) 16. Project Manager contacted concerning ☐ Yes □ No

SR-002-B

discrepancies? name/date (or samples

outside criteria)

 \square No.

Discrepancies